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"Scire est nescire, nisi id me
Scire alius sciret."

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THE RELATION OF MEDICINE TO THE NATURAL SCIENCES.

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BY

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IF there is one feature more than another which distinguishes the civilisation of to-day from that of former ages, it is the rapid rise out of comparatively insignificant beginnings of the vast and imposing structure of modern science. The latter part of the nineteenth century especially is characterised by the remarkable developments that have taken place in the natural sciences and in scientific methods of thought, and it is safe to assert that of the learned professions none has advanced more rapidly, or shown greater changes in both its theory and practice, than medicine.[1] To no other profession has so wide a vista of future extension been opened up.

[1] I use the term medicine in its wider and proper sense to comprise both medicine, surgery, and all their branches.

This fortunate condition we owe to the great advance of modern science, which has extended the scope of the healing art, widened its interests, and brought it into touch with almost every form of scientific activity. We have only to consider modern surgery in order to realise the great gulf, the absolute difference in kind, which divides the medicine of the present day from that of even so recent a time as one hundred years ago. Science has entered so fully into our lives, has become such an intimate part of them, and we have come to regard this so much as a matter of course, that we rarely stop to think over the great changes that it has wrought.

The practice of medicine and surgery now consists essentially of the application to our art of the discoveries made in physics, chemistry, electricity, and biology. We might define present-day medicine as science applied to the study and treatment of disease. Not only is this true of practical methods, but thought and opinion have also been modified to an extent that we hardly realise. It is difficult to put ourselves into the mental attitude of our predecessors towards the problems of life, but I shall probably be correct in saying that the theory of evolution has effected no less striking a change in philosophy, in our views of life, and of the nature of the universe, than applied science has in our daily practice. We may, as Dr. Payne pointed out in his Harveian Oration for 1896, regard this modern advance in scientific knowledge as the latest of the several revivals that have occurred in preceding ages of the Greek spirit of inquiry at first hand into the laws of nature. In our own profession this principle of direct observation and experiment was first acted upon by Hippocrates and the Hippocratic physicians, and is exemplified in the remark of Aristotle, that "of doctors those who practice their art in a scientific spirit begin the study of medicine by working at natural science." The history of medicine is one of periods of inactivity, of torpor and stagnation, alternated with periods of advance. These latter have always been marked by a recrudescence of the Greek method of experimental investigation into natural phenomena. The periods of stagnation have equally been remarkable for absence of direct observation, for wealth of theory, and of stereotyped systems of

medical practice. More than once, as for instance in the days of Galen, then again in the time of the circulation of the Arabian treatises on medicine, imperfect embodiments of the Greek spirit as they were, and, later still, when at the opening of the Renaissance large numbers of the original Greek manuscripts were brought into Italy, we owe a period of progress to the rediscovery and reperusal of the Greek masters themselves, and are thus directly indebted to their writings for a fresh step forwards. Far more important, however, than the actual facts and observations contained in their works is the gift we owe to them for laying down, once for all, the true principles on which alone a sound advance could be made. The discoveries of modern medicine and the enormous strides that it has made are not chiefly to be attributed to the invention of any new principle on which work should be based, but rather to the application to present-day problems of principles already established from of old with the aid of greater wealth of appliances, due to the infinitely greater extension of the allied sciences. Perhaps the new principle which most concerns our art, and which, although dimly foreseen in some speculations of the ancient philosophers, was never realised by them as a working force in biology, is that which underlies the doctrines of evolution and advance by natural selection. It is somewhat strange that this, one of the greatest contributions of modern science on its speculative side, has so far borne little fruit in the field of medical research. We can hardly say that the Darwinian theories have been worked out in relation to disease. This is partly due to the complex nature of the problems involved, partly also, I think, to the insufficient biological training which the majority of doctors receive. Consequently the purely biological aspect of medicine receives little consideration, although there must be much to be learnt in this respect, which would greatly help to elucidate the problems of disease as it affects different races.

The story of the relation of medicine to science in former ages, down, we may say, to the modern era, is briefly a history of the gradual rise and growth of science out of medicine through the labours of the medical profession. One of the chief glories of the history of medicine lies in the many

important discoveries that have been made in pure science by medical men. I do not here allude to those who were medical men by accident, as it were, who soon abandoned their profession for more congenial occupation in the natural sciences—on such grounds we might as well claim poetry as a product of medicine because Keats was a doctor—but to men who, though engaged during most or the whole of their lives in the arduous pursuit of medicine, yet kept alight the torch of science and passed it on to their successors, leaving us for emulation their great example.

This condition of things was partly a consequence of the fact that down to the modern era men mostly studied the natural sciences as an approach or introductory study to medicine, as is inferred in the sentence of Aristotle I have already quoted. In Greek times there was nothing exactly corresponding to modern science; the natural sciences comprised descriptive botany and biology, with a certain amount of anatomy founded on dissections of animals, and a still smaller knowledge of physiology derived from the apparent uses of organs as shown by anatomical observations. Chemistry was unknown, and physics also in the modern sense of the term. The Greek study of the laws of physics, although in some directions it carried them far—Democritus, for instance, went very near to anticipating the atomic theory—was chiefly concerned with transcendental or speculative inquiries as to the nature and origin of matter, and as to the structure of the universe. These systems of physics and correlated metaphysical speculations did not greatly influence medicine, so that it escaped in these times an overloading with theory. Hippocrates and his followers kept to the sound paths of anatomical, pathological, and clinical observation. Hence medicine in its early days avoided the fate which awaited it in the Middle Ages, when it was divorced from experiment and observation, and held fast in the bonds of tradition and the preconceived theories of the schools.

During long subsequent ages medicine preserved the same relation to such science as was known, and with few exceptions the workers at science were medical men. In the early Renaissance the renewed study of science was the outcome of

the revival of Greek learning, which arose from the passage into Italy of teachers from Constantinople, carrying with them manuscripts of the Greek writers on natural science. The scientific revival at this time accordingly followed the lines of the ancient Greek authors, and was practically confined to biology and anatomy. However, the study of anatomy, and of a certain amount of physiology in correspondence with it and derived mainly from anatomical observations, was carried by the aid of fresh investigations to a higher level than had ever been previously attained. Pathological observations on the dead body began to be made again, and the relation of *post-mortem* changes to symptoms during life to be traced out. Soon afterwards came the great discoveries of Harvey, who started anatomical and physiological researches on the right path, which they have ever subsequently followed, by insisting upon the necessity and demonstrating the value of the experimental method of inquiry, and incidentally almost at once placed anatomy and physiology on a sounder basis.

Hitherto, as we have said, medical progress had been wholly on the ancient lines of biological study. Long before this, however, the beginnings of the mystical study of alchemy in Alexandria had foreshadowed the rise of a new science, that of chemistry; but it is not until Paracelsus (A.D. 1493) that medicine was at all influenced by the beginnings of this science. Fantastic charlatan as in some respects he was, Paracelsus was the first to attempt, however imperfectly, to apply the then scanty knowledge of chemistry to the practice of medicine, and was the precursor of that iatro-chemical school which subsequently attained to so great an influence. The views of Paracelsus regarded diseases entirely in their relation to drugs, and had thus nothing in common with the traditional Galenical teaching of medicine, or with that of the anatomical school which succeeded it.

Sir Michael Foster points out that alchemy did not affect medicine earlier, because the alchemists who sought for the philosopher's stone and the elixir of life were not, as a rule, doctors, and, moreover, often carried on their work in solitude far apart from medical schools and universities. Hence "a

certain antagonism arose between this nascent science of chemistry and the older biological studies which formed the basis of medical education. The latter was the heritage of a a long-established, powerful profession; the former was the product of amateurs, of the efforts of scattered independent workers, and as such was despised by professional men."[1]

Through this long period, then, science is mostly in debt to medicine for any advance that was made, and for some time still this remains true, but to a progressively less degree, as we now come with the origin of the sciences of physics and chemistry in the first part of the seventeenth century to the beginning of the modern era, in which the bulk of scientific work ceases to be done by medical men.

During the whole of the seventeenth and eighteenth centuries, however, considerable contributions to science continue to be made by physicians labouring side by side with workers in pure science. Now science begins to repay her debt to medicine, and to repay it a thousandfold, so much so that we shall find that in future we have to look to science for the source of the chief advances in our art. In connection with the early history of physics and its application to physiology the illustrious names of Galileo, Descartes, and of Borelli, the friend of Malpighi, cannot be passed without mention, and in chemistry that of Van Helmont, especially in relation to his work on fermentation. The new discoveries in physics and chemistry enabled these sciences to be employed in the elucidation of physiological problems, as in the work done on respiration by the English school of the latter half of the seventeenth century—that school, of which we have reason to be proud, which includes Boyle, Hooke, Lower, and Mayow—and as in the researches of Stephen Hales on the physics of the circulation, and thence to be applied to some extent, though as yet to a very limited one, to medical practice. Passing over the intervening period of steady progress in physics and chemistry during the eighteenth century, we come at the end of this century to the celebrated discovery of Galvani (1791). Let us not forget that Galvani

[1] Michael Foster, *Lectures on the History of Physiology*, Camb. Univ. Press, 1901.

as a Professor of Anatomy and Physiology belonged to our profession, for it is hardly too much to say that the splendid achievements of modern electrical science come in no small degree from his first physiological experiments, partly indirectly, indeed, through his controversy with Volta, which led to the discovery by the latter of the voltaic pile and of the production of electric currents by the action of fluids upon metals.[1] From this time onwards the relation between medicine and science undergoes an entire change. The increasing complexity and range of scientific inquiry made it impossible for the worker in science to be at the same time engaged in the practice of physic, and moreover to an ever-increasing extent led him to specialise in one subject. To achieve distinction or to advance knowledge, he began to find that he must limit his work to one branch of science. Hence we no longer find science an avenue to medicine, but that it has become an end in itself, and the names illustrious in science cease, with rare exceptions, to be those of medical men. At the same time medicine itself is about to enter upon a career of rapid and unprecedented development, largely to be attributed to that great growth of scientific knowledge which placed so many new resources at its disposal.

In many branches of medicine science has given us exact knowledge, results which can be weighed and measured, and which can be calculated upon with certainty, as a substitute for empiricism. It has made it possible, although unfortunately to a still too limited extent, to predict that given certain conditions certain results follow. We have seen that as the domain of science extended greater efficiency necessarily entailed more strict specialisation on the part of the workers, and this same tendency has shown itself as much or more in our own art. The infinitely more extensive, and at the same time more accurate, knowledge in the strict fields of medicine and surgery implies that less time can be devoted by medical men to general scientific studies. In this respect I doubt whether medicine can retain in the future the position that it has held in the past. There can be no doubt that the average level in scientific knowledge of the medical man of the future will be higher than

[1] McKendrick, *Life in Motion*, 1902.

it has ever been before, because of the better training that is given in the sciences that bear directly upon medicine. That contributions to pure science of the same excellence and of the same extent and variety as those made in the past will ever again be produced by medical men is not probable. But, on the other hand, compensation may be found for this loss in the wide and engrossing nature of the problems opened up for investigation in the field of pure medicine, by the application to its theory and practice of the discoveries made in other branches of science. There is no longer need for the doctor to seek outside his own profession for subjects of scientific inquiry; he can find in his own proper work subjects in which he may confidently expect to advance knowledge, and these neither limited in scope nor tending to narrow his mind, but rather to bring him into close relation with the widest problems of biology. The pursuit of medicine, practised in the right spirit, is one of the few which enables its followers "to see life steadily, and see it whole."

It is the gradual emergence of medicine from the empirical to the scientific stage that has changed so greatly the position of the doctors of the twentieth century from those of former times, and it is from this point of view that we can estimate best the advantages which we possess as compared with our predecessors. I may be pardoned for quoting in this context a well-known passage of Bacon, because it brings out so clearly the change in our profession in these respects. After remarking on one drawback of our calling that "in the opinion of the multitude, witches and old women and impostors have had a competition with physicians," a statement which unfortunately for us, and still more unfortunately for the lay public, is almost as true to-day as in his time, he goes on to say, "Therefore I cannot blame much physicians that they use commonly to intend some other art or practice, which they fancy, more than their profession. For you shall have of them antiquaries, poets, humanists, statesmen, merchants, divines, and in every one of these better seen than in their profession." This passage well exemplifies the change which has come over medicine as a profession, and has raised it again into a calling of wide

intellectual interest. It seems to me that it also shows the point of difference between the doctors of our own day and those before the dawn of the modern era, and that this difference lies in the fact that the advance of medicine as a science, by giving the doctor fresh powers, has also given him confidence in his ability to heal and to increase knowledge, and that it was the absence of this hope of advancing the science and art of his own profession that drove the physician of Bacon's age to seek relief in other pursuits.

Of late years we have heard it said with increasing frequency that the learned physician of cultivated tastes will shortly become extinct. If it is meant by this that physicians will no longer, in Bacon's phrase, be better antiquaries, poets, or humanists than doctors, it is hardly to be regretted. After all, a physician, however eminent he may be in other branches of knowledge, should be learned as a physician first, and erudite in other ways afterwards. But fortunately the very nature of the medical calling brings the doctor into such close touch with all sorts and conditions of men, and with so many different forms of human activity, as to ensure that it will always contain men of wide culture. Possibly the physician of the future will attain to culture by ways which diverge from the traditional paths, his erudition may be chiefly in the natural sciences, that is to say in the science and knowledge of his times.

Of the way in which modern science may open out in a totally unforeseen direction a new branch of learning, and with it a new insight into disease and a new hope of progress in the healing art, the study of bacteriology offers a notable example. Passing over the philosophic interest of the discovery of forms of life so infinitesimally small, of a world of minute organisms hitherto undreamt of, the history of bacteriology strikingly illustrates how far-reaching and momentous a scientific discovery, at first sight of limited scope, may be. Who could have predicted that the work of Pasteur on ferments would lead to the elucidation of the true nature of infective disease, and still more remarkable would be the foundation of a new surgery, so extraordinarily successful in its results that it may well claim to be one of the chief scientific triumphs of the end

of the nineteenth century. Great as the achievements of modern surgery and the benefits that it has conferred on mankind have been, the advance in the knowledge of infective diseases and of the means by which immunity from them can be secured is no less striking and promises to be as fruitful in beneficial results. It is difficult to realise that more has been learnt of the nature of infective disease in the last thirty years than during the long ages through which they have been known to mankind; and not only so, but a line of investigation has been started which has by no means come to an end, for before this chapter in the history of medicine is closed we may confidently expect that the mode of exterminating these disorders will have been effectually learnt.

The reproach has been laid against medicine that during the long period between the Hippocratic School and the time of Sydenham it departed from the rule of the former of carefully observing and recording individual cases. Although this will always be a necessary part of medical investigation, and the more fruitful in proportion to the closeness with which clinical observation is kept in touch with the science of the day, yet the advance made in this way is necessarily slow, and the experience of modern times has shown that carefully devised scientific experiments are a necessary adjuvant to it, and lead through wider generalisation to more rapid progress. Further, it has been found that the exhaustive study of special branches of medicine has been rewarded not only by the increased light thrown upon some dark corner of our art, but by fresh additions to the whole realm of medical science.

We have thus briefly retraced the path which medicine has followed in its gradual evolution from empiricism towards the position of an exact science. Can we yet say that it has taken the last and greatest step and attained this position, and, if so, what is its place amongst the exact sciences? The answer to the latter part of this question is fairly obvious, it must be as a branch of biology that medicine takes its place as a science. But instead of the problems dealing with the conditions of survival, increase, and growth with which biology is mainly concerned, medicine is occupied with the departures from the

normal physiological standard, with the phenomena of decay or threatened dissolution. Disease not being an entity in itself we can most usefully conceive of it as a retrogression from the current standard of a healthy living activity. It is as a branch of biology that medicine deals with the results of the constant struggle between man on the one hand and the organisms that war against his existence on the other. So that medicine has to solve and to meet the problems connected with the survival of the dominant race—man—in his struggle with the forces that make for his extinction. We often forget, but should be constantly reminded, that in this internecine struggle nature carefully provides for the survival and growth of the lowest as well as of the highest forms of life. Blind and undiscriminating, she gives an equal chance to all. Hence it has always seemed to me that the "vis medicatrix naturæ," if it is meant by that term, as is so often implied in the common use of it, that nature benevolently works to protect and guard the highest organism—man—is a misnomer. Hence again, though we should all deprecate an unnecessary interference with "natural" processes of recovery from disease, and extended pathological knowledge has both informed us of the course of such processes and warned us of the importance of "non nocere," the doctrine of the "vis medicatrix naturæ" interpreted in the vulgar way leads to a sort of nihilism in medicine, which paralyses further advance in the art of healing. At the most all that the "vis medicatrix" can mean with regard to man and his departures from health is that in the course of ages his organs and tissues have attained to a position of equilibrium in working which is consonant with his best activity, and that when this equilibrium is disturbed by the incidence of disease there is in the majority of cases a tendency for it to be re-established.

Returning now to inquire into the conditions which must be fulfilled to constitute medicine an exact science, we find that, roughly stated, they are the following:—(1) The causes of disease must be known; (2) the precise alterations produced in the anatomical and chemical constitution of the body, and the exact organs and tissues affected must be ascertained; (3) the course which a disease runs and the results, if it is one which

causes as sequelæ, temporary or permanent changes in organs and tissues, and in their secretions, must be determined; and (4) we should be able, given the conditions, to reproduce the disease at will. It is enough to constitute medicine as an exact science if we can satisfy these conditions for some diseases only. If in other words there is a sufficient knowledge of the general laws which control, and of the phenomena which characterise, certain diseases, to enable us to lay down general principles on which those still imperfectly known can be worked out in a scientific manner.

The history of medicine in recent years gives many striking instances in which diseases imperfectly known or even new to us have been investigated with complete success by the application of methods founded on general principles established by observation and experiment in similar affections. What better examples could be taken than the recent discoveries in malaria and in the less known tropical diseases, such as the disorders caused by trypanosomes.

With regard to the exhaustive investigation of a disease in the ways indicated above, this has of late years been accomplished in many instances. Turning to the infective disorders, and taking for instance anthrax or tetanus, we know the cause, the nature of the poisons at work, the anatomico-pathological changes produced in the organs, the course of the disease, and, in the case of tetanus, the mode and exact seat of the peculiar combination of the toxin with the cytoplasm of certain highly-specialised cells. We can reproduce the disease, and not only produce it, but so regulate the dose of the poison as to give a mild or severe attack; and, lastly, we can confer immunity against an attack by methods the principles of whose action is understood. In these infective disorders then, which form so large and important a branch of medicine, the advances in knowledge that have been made are so great as to constitute alone a well-founded claim for medicine as an exact science.

Perhaps, in nervous diseases, our acquaintance with the seat and nature of the anatomico-pathological lesions and with the finer changes in the protoplasm of cells is more complete than in any others. This knowledge has been

acquired by utilising the extreme degree to which differentiation of function has been carried in the gradual evolution of the nervous system. The progress that has been made in the knowledge of the structure and function of this part of the body during the last generation is remarkable. But though the mode of action of certain poisons and toxins has been ascertained and the selective affinity of some of them for definite tracts and centres has thrown much light on the action of poisons in general, we are very much behindhand in our knowledge of the exact causes of nervous diseases. If we could make one step forwards, and recent work has given us fresh hope of this, we should fill a most important gap in scientific medicine—I mean if the organism of syphilis were discovered and its life-history known. If in this one disease we could work out the life-history of the organism and ascertain its chemical products, we should, by combining these fresh acquisitions with the already acquired accurate knowledge of the anatomical lesions, not only obtain a complete picture of the course of a most important disease, but incidentally get fresh light on the conditions underlying other nervous affections. It seems to me that we are close to the time when our knowledge of nervous disease will give medicine another title to be an exact science.

To take another example, and this time from the chemical side of medical work. No better example of the replacing of empiricism by scientific experiment could be given than is afforded by modern pharmacology in its investigation of the relation between chemical constitution and physiological action, and of the physiological effects of introducing various chemical groups into complex organic compounds whose physiological action is known. Then the recent experiments on digestion have taught us that cells, differing little in morphological characters, may show an unexpected differentiation of function. Recognition of functional differentiation of this kind is of the very essence of exactness in clinical work, and these experiments afford good evidence that parts of organs hitherto regarded as practically identical, may in reality carry on distinct and highly specialised activities.

In spite of these many and great advances, we have, however,

still to deal in too large a field of disease with the uncertainty of result, which from a scientific standpoint is the bane of clinical medicine. Hence, to quote again from the passage of Bacon which I cited above, it is still true of our position as medical men "that the physician . . . hath no particular acts demonstrative of his ability, but is judged most by the event; which is ever but as it is taken: for who can tell if a patient die or recover, . . . whether it be art or accident. And therefore many times the impostor is prized, and the man of virtue taxed."

Many factors contribute to this uncertainty of result in actual practice. One of them is to be assigned to what is commonly known as the "idiosyncrasy" of the patient, but may be better termed the variable reaction of the individual, an unknown quantity for which large allowance has to be made in practice, and which often comes to baffle the best directed efforts at treatment and the most carefully-considered prognostications. Possibly to some minds, with a natural bent for speculation and theoretic inquiry, the very uncertainty of the issue in the individual possesses a charm in itself, as a food for thought and philosophic questioning. But however fascinating in the theory of medicine the problem of individual variation may be, it is anything but pleasing in the daily practice of our profession. We must long for the time when we shall be able to do our clinical work with exactness, and to look with confidence for precision of result. Another and still more potent cause of failure of our best directed efforts lies in the extreme complexity of the problems often presented in clinical medicine. There are causes at work which we fail to recognise, or we are misled by certain symptoms to attach undue importance to some minor factor, and to overlook the true cause of disease, either because at the time of investigation it may not be giving rise to clear signs, or, although present, their significance is not appreciated. The variation of the pathological processes that take place during the course of a long and complicated disease is also difficult to estimate aright. It results that when the work has been done in the most accurate and careful way possible we are confronted with a mortifying failure because the

value of a certain factor or factors has not been correctly calculated. Such are two of the most obvious conditions which have in all times, and do now, render the practice of clinical medicine unsatisfactory from the standpoint of the scientific worker and expose the practitioner to unmerited reproach.

The remedy is to be sought in the increasing application of scientific methods to medicine, and it is to modern science that we must look to remove such obstacles from the path of medical progress. After all, when we speak of idiosyncrasy as altering the ordinary course of a disease we are but exposing our own ignorance. Diseases, like all other natural phenomena, move by exact laws, and the individual variations which now baffle us would appear, if our views were wide enough and our knowledge deeper, but as expressions of the action of these general laws.

In closing this inadequate summary of the relation between medicine and science, I may allude to one danger which it seems to me may impede our future advance, and that arises from the increasing specialisation which appears to be the necessary correlative of latter-day progress in all branches of science. The day of the encyclopædist in science seems to have passed. It is impossible for even a Darwin or a Kelvin to be in the first rank in more than one or two branches of it. This development of specialisation may lead to such an increase of technicality in methods of work and in the terms in which they are described as to make it barely possible for the workers in one branch of science to thoroughly appreciate what is being done by those engaged in another, so as to be capable of turning recent discoveries to account in their own special province.

From this cause there is a danger that medicine should again become too stereotyped, and thereby lose that close connection and interdependence with other sciences which have been so laboriously built up during the past three hundred years, and from which it has derived such enormous advantage. Should this unfortunately occur, it seems to me that, in spite of all the great advances that have been made, there might again ensue one of those sterile periods in our art in which once more "systems," with their arid and barren theories, would take the

place of that constant scientific observation which is essential to true progress. It may seem impossible now that we have gone so far that our practice should become retrocedent, but it must be remembered that in former times men have been equally well satisfied with the extent of their knowledge. For instance, in the Roman civilisation of the age of the Antonies, which offers so many striking resemblances to our own era, a very high degree of material prosperity was reached. Men talked just as readily as we do now of the resources of modern civilisation, and probably the troups of students who followed Galen from bedside to bedside of his patients would have scouted the idea that their knowledge of medicine left much to be desired.

The remedy lies in constant and strenuous exertion to keep the science and art of medicine in close touch—no easy task—with every advance in biology, chemistry, and physics, that as science continually extends her beneficent domain, and as "the old order changeth, yielding place to new," medicine may, by taking and holding fast what is of permanent good in both new and old, fight with ever-increasing success against disease and death.

THE SURGICAL ASPECT OF CHOLELITHIASIS.

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I.

ALTHOUGH Petit, about 1743, suggested with wonderful foresight that gallstones should be removed by operation, it was not till within the last twenty years that the surgery of the gall-bladder and its ducts made any appreciable advance. It is not, therefore, surprising that the knowledge of what can be effected by timely interference is scarcely as widely known as the subject deserves.

In looking over my notes of operations for cholelithiasis, a consideration of the difficulties in diagnosis and the question of operative treatment seemed an efficient means of drawing attention to the subject.

A gall-bladder may be distended by mucus (catarrhal cholecystitis), pus (suppurative cholecystitis, empyema), or bile. The enlargement is perhaps most commonly mistaken for a movable kidney. The enlarged gall-bladder lies immediately under the parietes, and unless adhesions are present can be moved laterally, and ascends and descends with the liver during respiration. It always has, however, a fixed point at the liver about opposite the tenth costal cartilage, and if an attempt is made to push it into the flank it springs back into its normal position. The movable kidney is more deeply situated, it recedes into the loin on pressure with a characteristic slip, and when reduced stays in position. If associated with pain, this is referred downwards along the ureter to the groin. The kidney is covered by the colon, but too much stress should not be placed on the existence of resonance due to this fact, as an enlarged gall-bladder may also be overlapped by the colon, owing to the presence of adhesions.

Extensive inflammatory adhesions around the gall-bladder may cause some confusion with tumours of the pylorus, colon, or omentum, but if an attempt be made to hold the tumour after it has descended on deep inspiration, it will be found that it is impossible to keep the gall-bladder down during expiration, whereas the other tumours referred to can be so held unless they have formed adhesions to the liver. The diagnosis is perhaps of less importance in these cases, as the presence of a tumour would probably be considered a sufficient justification for operation.

In acute cholecystitis the existence of tenderness and fever may also be of service in the diagnosis, but it is most important to bear in mind that so dangerous a condition as suppurative cholecystitis can exist in a chronically thickened gall-bladder without any perceptible tumour at all.

Pain is one of the most characteristic symptoms of gallstone disease, but it varies so much in severity and locality that errors

in diagnosis often occur. The pain of catarrhal cholecystitis may be slight and may pass off in a few hours, but the pain of a suppurative cholecystitis is often very severe, especially if it is associated, as it frequently is, with inflammation of the adjacent peritoneum. The tenderness is so great in these cases that a satisfactory examination is often not possible.

So long as the gallstones are confined to the gall-bladder the pain is chiefly felt in the right hypochondrium, and radiates to the breast and back, but if the stones are forced into the cystic or common duct the pain and tenderness are frequently most severe in the epigastrium. In these latter cases the pain is of a very violent character as obstruction is added to inflammation.

The pain thus excited has frequently led to an erroneous diagnosis of gastric ulcer, and I feel sure that most cases of so-called gastric cramp are really due to gallstone colic. The pain of gallstones comes on generally without any exciting cause, and is not influenced by food, as in the case of gastric ulcer. A test meal will show the presence of hyperchlorhydria in the latter case, and such symptoms as hæmatemesis or jaundice will, if they occur, aid in the differential diagnosis of ulcer or gallstones respectively.

Gallstone colic is often so severe and sudden that it has been mistaken for intestinal obstruction or some form of peritonitis, such as that due to ruptured gastric ulcer, appendicitis, &c. In these cases we have the symptoms—pain, collapse, vomiting—which have been grouped under the term "peritonism," and which may be said to be common to all acute crises in the abdomen. A right diagnosis may be made only after watching the case for a time, but the presence of well-marked tenderness in the right hypochondrium should put us on our guard as to the probable cause. In peritonitis the abdomen, in the early stage, is retracted and rigid, and the respiration is of the costal type; but in gallstone colic the diaphragm usually continues to act.

A rapid and fatal form of peritonitis does however occur in acute phlegmonous inflammation of the gall-bladder, leading to gangrene. The symptoms are severe and unmistakable, and

such a peritonitis occurring in the right hypochondrium demands immediate operation.

A less severe, though serious, peritonitis also occurs in association with suppurative cholecystitis, and the existence of pain, fever, and tenderness accounts for its confusion with appendicular peritonitis. The difficulty is increased by the fact that the appendix frequently runs in an upward direction, but in cholecystitis the tumour (if it exists) and the point of maximum tenderness are closer to the costal margin than in appendicitis. Catarrhal cholecystitis tends to recur, and thus a resemblance to appendicitis occurs; but here again the situation of the point of greatest tenderness will elucidate the diagnosis.

When a gallstone enters the common duct the patient frequently suffers from ague-like paroxysms, in which an initial rigor is followed by a rapid elevation of temperature—104° to 105° F.—which falls abruptly to normal in a few hours. These attacks may occur several times a day, but their marked irregularity at once distinguishes them from malarial fever. A remittent or intermittent jaundice often accompanies these attacks, but it is not sufficiently understood that jaundice is not a necessary accompaniment of stone in the choledochus. I have removed stones from the common duct in which no jaundice occurred, but in these cases bile pigments were present at times in the urine.

If jaundice occurs we have to differentiate between the presence of a calculus in the choledochus and jaundice produced by pressure on the duct from tumours (malignant disease) or inflammatory conditions of the pancreas (chronic pancreatitis). If the jaundice has set in suddenly, accompanied by colicky pains, the diagnosis is in favour of stone, and if there is a distinct history of remission of the jaundice there is an almost absolute certainty that a stone in the choledochus is the cause. On the other hand, a steady increase in the jaundice without remission points to some external cause (tumour, pancreatitis), and especially if the jaundice is very deep and unaccompanied by fever or pain. The condition of the gall-bladder in these circumstances is worth noting. Owing to previous inflammatory

attacks in association with calculi the walls of the gall-bladder are thickened and incapable of distension. This does not obtain in jaundice due to pressure from without, so that deep jaundice in association with a distended gall-bladder is in favour of malignant disease. I have, however, met with several exceptions to this. Cachexia, and the enlarged gland ("Virchow's gland") at the base of the neck which occur in cases of malignant disease, appear too late to be of value in the diagnosis, and I have successfully removed stones from the common duct in a patient in whom there was an appearance of cachexia which had led to a diagnosis of cancer. In fact, the differential diagnosis of these three conditions—stone in the common duct, malignant disease, and chronic pancreatitis—is beset with considerable difficulty, so that it is often necessary to advocate an exploratory operation for the purpose of clearing up the matter.

When the disease has lasted for a considerable time, malignant disease can be fairly easily diagnosed or excluded; but that still leaves us with the uncertainty in many cases as to whether we are dealing with stone in the common duct or chronic pancreatitis.

Mr. Cammidge[1] has sought to dispel the difficulties just referred to by an examination of the urine; but with the assistance of Mr. Taylor, the dispenser at the Royal Infirmary, I have tried the tests suggested in several cases, and have not found them of any practical value.

So, too, as I showed some years ago,[2] the X-rays are not likely to be helpful in the diagnosis of cholelithiasis, as the shadow cast by gallstones is very slight.

It may be helpful to tabulate some of the chief points which are worth noting in association with the gall-bladder and its ducts.

1. A gall-bladder which has been repeatedly inflamed may not be capable of distension, so that a suppurative cholecystitis may exist without a palpable swelling.

[1] *Brit. M. J.*, 1904, i. 776.

[2] "The Effect of the Röntgen Rays in Calculi," *Bristol M.-Chir. J.*, 1897, xv. i.

2. A painless enlargement of the gall-bladder without jaundice suggests catarrhal cholecystitis.

3. A painful enlargement of the gall-bladder without jaundice suggests an empyema of the gall-bladder.

4. A painless tumour of the gall-bladder with jaundice is in favour of an obstruction of the common duct by a tumour (malignant).

5. Remittent jaundice, generally without an enlarged gall-bladder, accompanied by chills and pain, occurs with stone in the common duct.

6. A hard, nodular, painful tumour of the gall-bladder, with or without jaundice, denotes carcinoma of the gall-bladder.

7. Jaundice is a less frequent symptom in cholelithiasis than is usually supposed. Kehr says it is absent in 80 per cent. of cases.

II.

Though gallstone disease is extremely common, we find that only a small proportion of people suffer actively from it. Even in those who have definite attacks of gallstone colic the mischief frequently subsides under appropriate forms of medical treatment which it is not my intention to discuss; but in these cases it is the inflammatory phenomena only which subside—the gallstones remain in most cases. Quiescent stones may be practically ignored, though we must remember that ulceration and carcinoma may develop from the presence of such concretions.

Patients so quickly recover after their attacks of gallstone colic that we can scarcely wonder at the tendency among both the profession and the laity to delay operation until some definite pathological lesion has been set up; but when one sees the late results of gallstones—such as empyema, cholangitis, perforation and impaction of stones in the choledochus, all of which are associated with a high degree of mortality—the surgeon is justified in his anxiety to operate while the gallstones are in the gall-bladder, when the mortality does not exceed one per cent. As these facts become more widely known it is probable that the present custom of delay may give place to an earlier prophylactic operation after the manner of its

comparatively recent adoption in appendicitis. More than half of my cases of operations for gallstones have been performed while the stones were in the gall-bladder, and not one of these simple cases died. Against this satisfactory result we have the fact that operation for stones in the common duct (choledochotomy) has a mortality of 10 per cent. or more.

By this suggestion of early operation it is not to be understood that I am advocating operation in every case. Such an idea is worthy of as great condemnation as the habit of delay to which I have referred. It will therefore be useful to first consider those cases in which operation is undesirable.

In mild and infrequent attacks of cholecystitis the patient would probably be unwilling to consider the question of operation, and in such cases it cannot be considered absolutely necessary, even though we know that many of the mild cases slowly progress towards serious pathological disease. If, however, the gall-bladder is enlarged I think an operation should be recommended, though the case may be otherwise of a mild type (*v. infra*).

Even with frequent and severe attacks of colic associated with the passage of small calculi an operation is unnecessary so long as the stones continue to pass. Operation is indicated if the frequent attacks of colic cease to be attended with the expulsion of calculi.

In acute obstruction of the common duct operations should not be performed, as such cases not infrequently get well under expectant treatment. If, however, the jaundice persists for some five or six weeks, or if symptoms of cholangitis—as shown by rigors, intermittent fever, enlargement of the liver, &c.—supervene, operation is desirable; for under such circumstances the risk of operation is far less than that of expectant treatment.

In old patients, and those suffering from organic disease of the heart, lungs, or kidneys, operation is rarely justifiable, and in any case should only be undertaken on account of the development of some grave condition associated with the gallstones.

On the other hand, operation should be advocated in cases

of severe and frequent colic, incapacitating the patient from the necessary duties of life.

In all cases of enlarged gall-bladder, whether painful or not, and whether accompanied by jaundice or not, operation is the safest course to pursue. This will include some of the catarrhal and suppurative affections of the gall-bladder; but it must also be remembered that suppurative cholecystitis may occur in a contracted gall-bladder without causing any palpable tumour.

The occurrence of acute diffuse peritonitis in the neighbourhood of the gall-bladder may be associated with acute phlegmonous inflammation of the gall-bladder, or perforation of the gall-bladder or ducts. Such conditions are extremely grave, and with any indication of their existence operation is imperative.

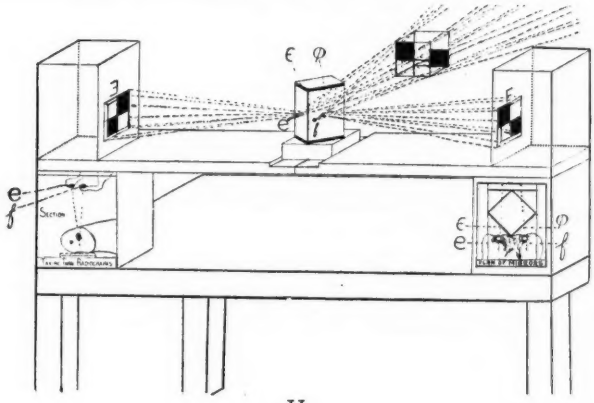
Painful adhesions between the gall-bladder and the stomach or intestines should be released by operative means.

I have already said that a chronic obstruction of the common duct — especially if associated with cholangitis or symptoms of liver abscess — should be treated by operation, and some observers state that they have had success after operation in cases where the patients have been addicted to morphia in consequence of gallstone colic.

The pathological lesions in many of the cases referred to are so serious that operation is necessarily attended with a high mortality. This mortality, though the operations are often tedious and difficult, is largely due to delay, and might often be avoided by an earlier resort to surgical interference. Each case must necessarily be considered on its merits; but where medical treatment has failed, or where the more serious symptoms are threatening, we may be sure that operative procedures are safer than a continuation of expectant treatment, and our aim should be, if possible, to operate before the stones have left the gall-bladder and become impacted in the ducts.

points of sight. The successive stations of the focus tube were $2\frac{5}{8}$ inches apart. The anti-cathodal centre of emission was about 14 inches above the plane of the two plates, as ascertained by shadowing the cube *in situ* upon the developed plate by means of a small luminous flame.

The pair of radiographs thus obtained may be reduced in size by ordinary photographic methods, certain precautions being taken to prevent exaggeration and misdirection, and thereafter examined in the familiar refracting stereoscope; or in their original size they may be directly examined in the less familiar reflecting stereoscope (Illustration II.).[1]



II.

Even in a beleaguered city it should not be difficult to construct one of these. A very passable one may be made out of a couple of small rectangular pieces of looking-glass, an empty cigar box, two rubber book-bands, and a few wooden boards and blocks on some firm support. The essential part is in the centre, and consists of two plane mirrors ϵ and φ measuring a few inches each way, meeting at right angles along a vertical line, and facing respectively the observer's two eyes.

[1] There seems to be no particular reason why (in certain circumstances and with certain precautions and adjustments) one should not simultaneously combine the X-ray and the photographic views of the same objects stereoscopically.

This is mounted on a base that can be slid backwards and forwards, right and left. On the right and left of the mirrors are placed moveable supports for the stereoscopic photographs that are to be visually blended. After careful levelling and adjustment of the photographs on their supports (or otherwise mounted on sliding carriers that can be moved to and fro along the cross-piece), equidistant from the mirrors, the observer gazes with one eye into ϵ and the other into φ, keeping his forehead near and opposite to the angle between the mirrors, and looking through them, as it were, towards a point about as far beyond them as the photographs are to the side.

On sliding the base of the mirrors backwards and forwards he will, if he keeps his head steady and level, find the separate plane images slipping over each other from side to side and suddenly coalescing (within certain critical limits antero-posteriorly) into a single solid image as it were of a triply extended real object or collection of objects. At night a good candle or lamp may very conveniently be placed on the top of the mirrors, and the simple apparatus described may be elaborated further in the direction of providing trans-illumination of the component radiographs by making their supports hollow to contain suitable lights and frosted or opaline screens, or the lateral supports might be made to rotate and display a succession of photographs.

According as we place the two negatives (or prints) at either end of the cross arm, two prints (or negatives) appear respectively in the mirrors ϵ and φ, owing to the reversing action of the plane mirrors. When the respective pairs of plane images blend stereoscopically we get four distinct and recognisable triply-extended or stereoscopic images behind the mirrors, at a distance from the eyes corresponding to the original distances of the objects portrayed from the focus tubes. These results merit tabulation.

Let the two positions of the focus tube be represented in order by the letters **e** and **f**, then **E** and **F** represent the corresponding negatives and **∃** and **F** the corresponding prints :—

LEFT FOREARM X-RAYED AS DESCRIBED.

(Illustrations III. and IV.)

No.	Radiographs as they appear respectively in mirrors ϵ and φ		Perspective as tested by appearance of wooden cube dusted with bismuth.	Appearance of Limb.
I.	E	F	Correct binocular or stereoscopic perspective.	Left forearm through and from back.
II.	F	E	Pseudoscopic conversion of relief.	Right forearm through and from front.
III.	ㄱ	ㅋ	Correct binocular or stereoscopic perspective.	Right forearm from back.
IV.	ㅋ	ㄱ	Pseudoscopic conversion of relief.	Left forearm from front.

There are other combinations as we invert the radiographs, &c., but the above comprise all the cases for the erect position of the object, the distal extremity of the limb being at the top of the picture. Also it is assumed that the distance of the photographs from the mirror, together with that from the mirror to the eye, is much the same as that of the focus tube from the photographic plate at the time of taking, but there is very great latitude and longitude permissible.[1]

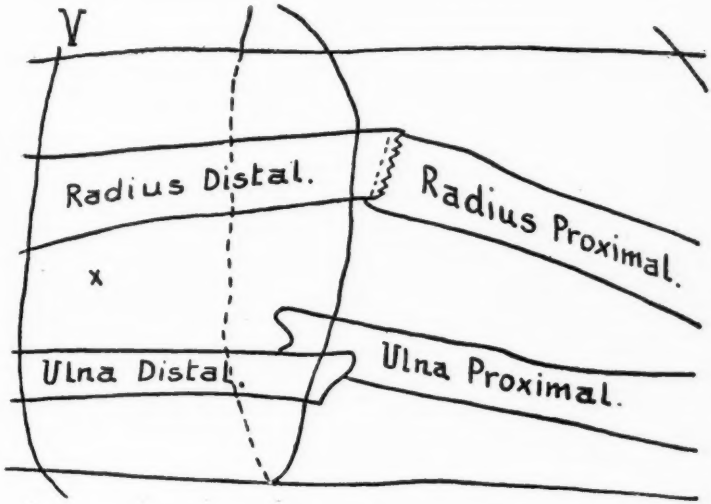
In my opinion No. I. is the only proper combination, though No. IV. might pass muster in a court of law; Nos. III. and IV. are through the looking-glass creations, and Nos. II. and IV. appear to be of the nature of "visual surds" respectively to Nos. I. and III. There appear to be at least two and thirty ways of arranging the components of an X-ray or ordinary photographic couple, and though only two of them are right, nevertheless they may all give recognisably different stereoscopic images.

[1] It would seem that the somewhat perplexing relationships of these diverse imaginary figures come well within the purview of the science of Quaternions, and perhaps even the nervous connections of the brain itself, in the discharge of its stereoscopic functions in binocular vision.

III.

IV.

The system of interpretation of single and paired X-ray representations set forth by me in this Journal and elsewhere is not that generally accepted, based as this is on the rules of *Perspective*, and the use exclusively of the *X-ray negative viewed from its face* as the only true equivalent of the ordinary photographic print. It is, however, a very fair subject for discussion, the existing text-books (on this matter, at any rate) giving no consistent or definite guidance. For example, according to recognised clinical methods the percussion outline of the heart in a big man is fairly *similar* to and reliably comparable with that in a small man, apart from alteration by disease. But on my principles, unless the distance of the focus tube from the subject is proportional to the thickness of these two individuals, the X-ray shadow outline on the chest of the one man is not truly *similar* to or comparable with that in the other. And, further, on my principles, even when the last condition is attended to, the percussion outline and the X-ray shadow outline of an internal organ do not appear to be ever mathematically similar and directly *inter se* comparable.



V.

I am indebted to Mr. Thomas Clark for the originals of the accompanying radiographs and radiographic outlines, the twin negatives being produced with the aid of an electrical influence machine designed and constructed by himself. The exposures were of two minutes each.

As a practical result of the methods used, the radiographer is able to assure his surgical colleague (without any personal examination of the case) that the distal parts of both bones, especially the ulna, are tending to be drawn past the proximal portions, and posteriorly to the latter, though perhaps a good deal of the apparent overlapping of the fragments of the ulna is due to the exaggeration of a close and short perspective. Graphically, the condition of things might be roughly sketched as in Illustration V. If this be held with one eye opposite the point of sight (marked x) at about a distance equal to that which the sensitive plate originally had from the focus tube, the parts depicted will appear under the same angles as they would have appeared in the left forearm in question (viewed through its back from the place where the focus tube was stationed at the time of taking) if the parts had been correspondingly transparently visible.

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A STUDY OF THE RECORDS OF ONE HUNDRED AND FIFTY-FIVE CASES OF OPERATION FOR APPENDICITIS.

BY

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FIVE years ago I published some observations on 40 cases of operation for appendicitis.[1] Since then I have operated on 115 more (up to end of July of this year), and I think some further observations on the whole series may now be of interest. A table of the cases has been prepared. I now simply give the number of cases in the various forms of the disease in the second series.

Appendix (inflamed, ulcerated, perforated or gangrenous) removed during acute attack, no suppuration around, 8 cases, all recovered.

Localised suppuration around the appendix, 62 cases, 8 deaths.

Operation in quiescent period for recurrent attacks, 15 cases; after one severe attack, 1 case; chronic appendicitis, 1 case—all recovered.

Diffuse peritonitis, 14 cases, 12 recoveries.

General peritonitis, 6 cases, 1 recovery.

Mechanical obstruction associated with appendicitis, 4 cases, all died.

One, possibly two, cases of portal pyæmia. The undoubted case died. The other is included in the cases of removal of the appendix without suppuration, and recovered.

It may be well to define at once the difference between the cases I have labelled general peritonitis and those classified as

[1] *Bristol M.-Chir. J.*, 1900, xviii. 320.

diffuse peritonitis. By general peritonitis I mean cases in which the whole peritoneal cavity was involved; by diffuse peritonitis I mean a peritonitis spreading widely in the lower abdomen, and not merely suppuration localised just around the appendix. Such cases are frequently called general peritonitis.

In my first 40 cases there were 6 cases of general peritonitis, and all died. In my second series of 115 cases there were also 6 cases, with 1 recovery. There were, therefore, nearly two-thirds more cases in my first series. Is this due to a growing recognition of the need for earlier operation in severe cases? Nearly all the cases of diffuse peritonitis would undoubtedly have become fatal cases of general peritonitis if not operated on when they were. This series is particularly encouraging, as out of 14 cases 12 recovered. In all the cases the peritonitis was widespread; usually involving the pelvis, and often the whole of the lower abdomen, and without any localisation of the pus, or if there had been localisation, widespread infection had also occurred. Yet there was no evidence that the peritonitis extended all over the abdomen. In most I made a separate incision above the umbilicus to see if there was peritonitis in the upper abdomen, and did not find evidence of it. As I have already stated, many surgeons publish such cases as cases of recovery from general peritonitis, but general peritonitis is a much less hopeful condition to deal with, and the publication of such cases under the name of general peritonitis is misleading. All the cases of diffuse peritonitis were treated by free sponging and drainage, and the appendix was removed.

In my first series of cases there were many in which I evacuated the pus without opening the general peritoneal cavity, but very few in my second. This is because the cases came under my care at an earlier period, due also to an increasing recognition by medical men of the need for earlier operation.

I need not again refer to the method of evacuating the pus in such cases, as I did so fully in my last paper, but I now adopt an additional safeguard to prevent pus entering the general peritoneal cavity, which I did not do before. I never now operate on an acute appendicitis without placing the patient in such a sloping position that his right anterior superior spine is

the lowest point of the trunk. There is no turning of the patient about when pus is found, he is already lying so that it will tend to run out of his wound. Of course very thorough gauze packing around the appendix region within the abdomen is also made before any adhesions are broken down.

In my second series are 8 cases (not including the case of portal pyæmia) in which, although the appendix was diseased, no pus was found around it and no spreading peritonitis. They all recovered. In one of these the appendix was actually gangrenous, in two perforated, and in another full of pus and greatly inflamed. These cases were saved considerable risk. In two there was acute inflammation with lymph on the surface, in one ulceration was associated with a temperature of 107°, and in another with dense old adhesions from previous attacks, and adhesions of coils of small intestines which were so bound down in a kinked condition as to render the patient liable to obstruction at any time.

In a few of the cases classified as localised abscess there were no adhesions: the pus lay around the appendix, and was kept from dissemination, apparently, simply by the pressure of surrounding distended coils. The danger of such a condition can be readily imagined, and the value of the position of the patient during operation, to which I have called attention, in such cases is evident.

There is no need to inquire as to the cause of death in the cases of peritonitis or mechanical obstruction, but it will be very useful to study the condition under which the localised collection of pus proved fatal, after operation, and I give an abstract of each case.

Case 1.—Boy, aged 12. Operation on third day; large collection of pus evacuated; no bad symptoms until three days later; then belly kept soft and free from distention and tenderness; there was no vomiting, but jaundice came on, and rales at bases of both lungs, with bronchial breathing at right base, and he died twenty-four hours later.

Case 2.—Male, aged 19. Not sent into hospital until eighth day; abscess opened at once; went on fairly well until forty-eight hours after; then symptoms of general peritonitis set in, and he died quickly. At the *post-mortem* the abscess was found communicating with peritoneal cavity as well as draining externally;

it seemed well shut off at time of operation; probably adhesions had given way forty-eight hours after operation, but why?

CASE 3.—Boy, aged 7. Appendicular abscess on the left side; drained and appendix removed; operation 7 p.m.; condition good at end; rather restless, but otherwise all right when seen by house-surgeon 11.30 p.m.; hypodermic injection of morphia given later; not seen again by anyone but nurse, and died at 8 a.m.; examination of peritoneal cavity after death showed no spread of peritonitis from original focus.

CASE 4.—Boy, aged 5. Not sent into hospital until one week after onset; large abscess resonant with gas of decomposition; drained; next day rapid pulse, vomiting, and tender abdomen; general peritonitis diagnosed but none found *post-mortem*. Sloughs of the iliac muscle in floor of abscess sac; ? toxæmia. Highest temperature after operation 101°.

CASE 5.—Male, aged 36. Very large extra-peritoneal abscess, which I could not diagnose before operation, as it presented as an intense induration in the loin; drained; died five months later, after much hectic fever.

CASE 6.—Male, aged 37. Localised abscess drained and appendix removed; next day abdominal condition quite satisfactory, but cyanotic with tracheal rales audible when standing near him. R. 40, p. 120. Very little cough and no expectoration; breathing got worse in the night and he died. *Post-mortem* showed intense bronchitis, with collapse of the bases of lungs, but no spread of original focus of inflammation in the abdomen. Why did he get such bronchitis? He had had it shortly before operation, but had quite recovered. He only had chloroform, and not ether in any form. I believe a little vomit must have entered the air passages during the anæsthesia.

CASE 7.—Girl, aged 14. Large abscess outside ascending colon, with diverticula towards loin; two separate abscesses opened up during the removal of appendix. Was in satisfactory condition at end of operation, and remained so next day; no vomiting after operation, and abdomen less distended than before, soft, and not tender. Great restlessness and a very rapid pulse (without a temperature above 100°) set in at 2 a.m. second night, and she died following evening, without further symptoms. *Post-mortem* showed no extension of infection within the abdomen.

CASE 8.—Woman, aged 30. Abscess found ruptured on opening the abdomen a few hours after I first saw her; pus sponged out of pelvis and right loin; went on satisfactorily until third day after operation and then became jaundiced, and next day comatose, and died on fifth day with temperature of 105°. *Post-mortem* showed some lymph on a few pelvic coils. This was starting at time of operation, and had increased afterwards, but

was certainly not enough to cause death. There was no suppuration in the liver. A general *post-mortem* was not allowed.

In none of these cases was the operation for the evacuation of the pus the cause of death. In case 2 it seemed possible that at the time the abscess was opened it also ruptured into the peritoneal cavity, but it appeared well shut off after the evacuation of the pus, and the symptoms of peritonitis did not arise until forty-eight hours later. In some of the cases there seemed to be a condition of toxæmia without high temperature which proved fatal, and the close resemblance of the symptoms to those of general peritonitis in case 4 is very instructive. In case 8 the jaundice was very intense, and it seems probable it was a case of acute yellow atrophy of the liver complicating appendicitis. In six out of the eight cases if the appendix had been removed directly the diagnosis of appendicitis could have been made, and life would probably have been saved.

In severe cases of appendicitis there may often be marked constipation, but there were three cases in which there was complete mechanical obstruction, from adhesions and kinking of the bowel in the wall of the abscess sac, and one of obstruction from old adhesions complicating a recent suppurative appendicitis. In two the appendix abscess was first opened, and then further operation was undertaken for the obstruction; in another the condition was obviously intestinal obstruction at the first operation, and the bowel was drained, as well as two abscess sacs; in the fourth the obstruction was due to old adhesions, but complicating recent suppurative appendicitis, and the symptoms of obstruction, did not come on until some days after the abscess was drained. All the cases were fatal. They were very obscure in nature from the combination of the signs of appendicitis and mechanical obstruction, and it may be of interest to give brief abstracts of them.

CASE 1.— Boy, aged 12. History of origin that of appendicitis, but pain not first general and then in appendix region, but first in appendix region and then general. On admission to hospital very great general distension without general tenderness or rigidity, but tenderness in appendix region and behind bladder per rectum. Abscess evacuated and appendix removed. Large quantity of clear serous fluid in peritoneum and great

distention of coils. That there was a true mechanical obstruction was not recognised at the operation, but as distension persisted and vomiting recurred abdomen again opened, and greatly distended coils traced to wall of abscess sac, where a coil was adherent and kinked, and below quite empty. Although coil separated and distended coils evacuated, paralytic obstruction persisted and the boy died.

Case 2 was of the same nature, but the patient was a woman of 55. There was great tympanitic distension at the time the abscess was opened; this persisted, and a similar condition to that present in case 1 was found on a second operation.

Case 3.—It was difficult from the symptoms to decide whether there was general peritonitis or mechanical obstruction. Usually cases of general peritonitis are mistaken for intestinal obstruction. In this case two large abscesses, from perforation of the appendix, were associated with obstruction from matting of the coils.

Case 4.—In this case the obstruction was not present when the appendicitis abscess was opened, but came on some days later, and was found due to old adhesions in the pelvis from previous attacks of appendicitis.

In my first series of cases I had one of recovery from draining an abscess in the liver secondary to appendicular abscess previously operated on.[1] Since then I have had one fatal case of portal pyæmia, and one case of recovery after rigors and very high temperature, associated with very slight appendicitis, and as they are both of interest, I will give a brief abstract of them.

Case 1.—Boy, aged 15. Taken ill four days before I saw him with abdominal pain, which was never severe; a temperature of 100°; no vomiting; on the following two days had several rigors, and temperature reached 105° more than once. Slight jaundice was first noticed on the fourth day. There was no swelling, and very little tenderness, in the appendix region or per rectum, but there was slight enlargement of, and tenderness over, the liver. I diagnosed portal pyæmia, but thought it would give him a chance if I removed the appendix, and did so next day. There was no pus around it, but a large patch of gangrene in its wall, and stinking pus in its interior. He had one rigor as he came out of the anæsthetic, but no more, though there was some pyrexia. The jaundice increased, the tenderness over the liver persisted; sometimes there was great distention of the stomach, with vomiting, relieved by passage of stomach tube, sometimes of the intestines, also easily removed by hot turpen-

[1] This case is fully reported in *Bristol M.-Chir. J.*, 1897, xv. 323.

tine enemata. The wound suppurated. He died ten days after the operation. No *post-mortem* could be made.

CASE 2.—In this case a mild and subsiding attack of appendicitis was followed by severe rigors, but on removal of the appendix a rapid recovery was made. I do not think we can regard the diagnosis of portal pyæmia as certain, but it is difficult otherwise to account for the symptoms. We must remember the way in which cases of aural pyæmia recover when the primary focus of septic phlebitis is dealt with. In this case such a primary focus may have existed in a vein in the ulcerated appendix.

Abdominal pain and vomiting came on four days before I saw him, and the pain persisted in the appendix region, but he continued to travel about the country until the end of the fourth day, when he returned home. Then he sent for his doctor, who found the temperature was 102°, but the pain was much less. In the night the temperature reached 105°, with a rigor, and at 10 a.m. was found by his doctor to be 108°, and he had another severe rigor. The temperature was taken by his doctor, who checked the registrations of the thermometer used. I saw him that afternoon; there was no tenderness over the liver and no jaundice, but a small tender swelling in the appendix region. I removed the appendix that evening. It was very adherent, and the mucous membrane was ulcerated. There were no further rigors, and no tenderness developed over the liver, but distinct jaundice was present on the day after operation.

In connection with these cases I may call attention to the very high temperature with a marked rigor sometimes present at the onset of appendicitis. I had one case in which the temperature rose to 107° with a severe rigor within 24 hours of the onset of pain. The appendix was gangrenous.

I cannot give space in this paper to refer to the cases of peritonitis, or those of operation in the quiescent period for recurrence, in detail; but I would repeat what I have elsewhere stated, that it is not possible to separate cases of well localised acute appendicitis from those in which the peritonitis is not localised, but spreading. In the latter cases the pulse may not reach 100; the patient may not appear very ill, and the symptoms may not seem particularly urgent, and yet when we open the abdomen we find pus and lymph all over the pelvis, and perhaps the right loin as well. I have published in detail one or two such cases,[1] and I remember another in which the

[1] *Lancet*, 1901, i. 1134; *Brit. M. J.*, 1902, i. 325.

house-surgeon told me that when I saw the patient I should decide not to operate, but fortunately I did so.

There are also many questions which I should like to try and answer from a study of the records of these cases, such as the relationship between the symptoms and the condition of the appendix found at the operation, and the state of the appendix leading to such attacks, but neither have I time at present, nor would there be space in the Journal for so long a paper. That appendicitis is not always a peritonitis around the appendix, as one surgeon has stated, I am quite certain, for I have records of cases in which the symptoms of acute appendicitis were present, but the appendix was already buried in adhesions. That such adhesions are often present without any history (carefully inquired for) of previous attacks of appendicitis I am equally sure, and hence it is evident that a dry adhesive peritonitis may be present around the appendix, either without any symptoms or such as to be forgotten by the patient. That the pain of appendicitis is usually epigastric, or umbilical, or general, at the commencement, and not in the appendix region until later, is not yet fully recognised by all, and hence acute indigestion or colic is the label often put on the case at first; and possibly in many cases no other diagnosis may be possible, but a raised temperature might be found in most, if looked for. Of referred pains, I have known the rectum, the anus, and the testis as the seat. The presence of referred pain in the latter in appendicitis adds to the difficulty in the diagnosis of some cases from renal colic. In a few cases I have found that vomiting and diarrhœa preceded the pain, but this is very unusual, and until lately I should have doubted if they ever did so in appendicitis.

(*To be continued.*)

A NOTE ON CONGENITAL DILATATION OF THE URETERS WITH HYDRONEPHROSIS.

BY

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DURING the past twelve months I have seen three specimens of this curious condition, two of which were exhibited at the Society for the Study of Disease in Children and one at the Bristol Medico-Chirurgical Society. None of the children affected showed any symptoms of hydronephrosis during life, and that condition can only have been a contributing factor to their death. The ages of the children were five months, one year, and two years and two months respectively. All the children were wasted. Two died of acute bronchitis and one of suppurating spina bifida. Other congenital deformities are said by Dr. Emmett Holt to be rare in these cases, but Mr. Henry Morris seems to hold a contrary opinion.

The anatomical conditions found *post mortem* in all three cases were practically identical, differing only in degree. The most marked case was that in the child dying youngest, but this was the one complicated by spina bifida.

In all three there was marked hypertrophy of the bladder; the ureters were dilated and tortuous, and the kidneys hydronephrotic. In all of them a catheter was easily passed *post mortem*, and no evidence of a urethral valve or other cause of obstruction to the urethra could be discovered on dissection. There was no phimosis. The dilatation of the ureters ended abruptly at the bladder walls, the intra-muscular portion being very small in calibre.

The entire urinary system may easily be removed *en masse* by the following method: The kidneys and ureters are dissected off the posterior abdominal wall, and the dissection carried as far down round the base of the bladder as possible. A

catheter is then passed into the bladder to mark the urethra, the symphysis pubis is divided, and a portion of the cartilage removed. The mucous membrane of the prepuce is then snipped round close to the corona glandis, and the penis is pulled back into the abdomen. It is then easily removed without damaging the skin of the organ, which may be stuffed with a little cotton-wool.

I have remarked that the intra-muscular part of the ureters is always very narrow, and in the last specimen examined I found that though urine could easily be squeezed out of the bladder through the urethra, it was impossible to force water from the ureter into the bladder. I therefore came to the conclusion that the primary fault lay in the bladder walls, the hypertrophied condition of which may be compared to that of the pylorus in congenital hypertrophic stenosis. I regard the condition, in fact, as a primary hyperplasia of the bladder walls, due possibly to disordered nervous influence. To this is superadded, I believe, an element of muscular spasm, for the condition of the orifices of the ureters, like that of the hyperplastic pylorus in some instances, cannot be one of continuous atresia. Urine was passed in all my cases during life; but the spasmodic contractions of the thickened muscle compressing the orifices of the ureters for longer or shorter periods are sufficient to account for the backward pressure on the ureters and kidneys. It is not unlikely that irregularities in the micturition of a young infant should be overlooked, and had careful observations been made symptoms pointing to hydronephrosis might perhaps have been observed in all these cases.

The microscopical appearances of the tissues do not throw much additional light on the ætiology of the condition, chronic nephritis more or less advanced, with dilatation of the urinary tubules, being commonly found.

It cannot, of course, be said that primary hyperplasia of the bladder is the cause of dilated ureters in all infantile cases. Various anatomical obstructions have been found in the urethra and elsewhere in some cases. In some cases there is no marked thickening of the bladder walls, and in others a definite valve

is found in the urethra. An interesting case of the last-named kind was reported by Mr. Morton at the meeting of the Society for the Study of Disease in Children, held in Bristol in 1904, where the valve, which admitted a No. 3 catheter, offered considerable obstruction to urine flowing in an opposite direction.

Dr. Holt has reported ten cases, in only three of which a definite obstruction was found in the urethra; and Drs. Bryant and Hale White have described a most remarkable case in which there was also obliterative endarteritis with calcification of the adventitia, the child being only six months old. In this case a very extreme degree of phimosis was present, and was considered sufficient to account for the condition of the ureters and kidney. In some of Dr. Holt's cases the condition was unilateral, and in the bilateral cases some difference in degree was generally observed between the two sides. This, if hyperplasia of the bladder is present, or some obstruction is found lower down in the urinary tract, may be accounted for by differences in the activity of the two kidneys. In some of Dr. Holt's cases microscopical changes were found in both kidneys when only one ureter was dilated.

There does not seem to be much evidence of any close relationship between this condition and congenital cystic kidney. In one of Dr. Holt's unilateral cases a cystic condition of the other kidney was observed, most probably as a result of the nephritis, and not developmental in origin. Backward pressure of urine is much more likely to lead to hydronephrosis, as is remarked by Mr. Morris.

The condition may be regarded as rare, but would probably be found more often if it were more generally looked for, as has certainly been the case with other pathological states to which attention has recently been drawn.

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ON SOME ANOMALOUS CASES OF LOCOMOTOR ATAXY.

BY

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AMONG the large number of cases of locomotor ataxy conforming to the generalised description of the disease as given in text-books occur some which deviate from this in some way or other—either by the absence of ordinary features or by the presence of rare ones, or by the co-existence of other diseases which modify the usual clinical picture of the disease.

Absence of the knee-jerks is an almost constant feature of the malady. They may, however, be present either because the lumbar region of the spinal cord is not affected, or owing to intercurrent degeneration of the lateral pyramidal tracts. In the former class of cases a diagnosis may be made if other features, especially lightning pains and gastric crises, are present which are almost, if not quite, limited to this disease.

For instance, a man, aged 41, who eight years previously had primary and secondary syphilis, said that for a year he had suffered from intense shooting pains in the muscles of the legs, occurring in attacks lasting from four hours to several days. His description of these pains was so characteristic that a diagnosis of tabes could be made, though the physical signs were absolutely negative. He was ordered five grains of aluminium chloride three times a day, with antifebrin during the attacks. Six months later he reported that the pains, though still occurring, were less intense, and that the attacks were not so frequent or prolonged. The physical signs were still negative.

Gastric and intestinal crises, too, may be so definite and characteristic that a diagnosis of tabes may be made even in

the absence of physical signs. Thus a man, aged 42, who had had a hard chancre, though no secondary or tertiary symptoms—owing to persistent treatment with mercury—thirteen years previously, began to suffer six years afterwards from lightning pains, and three years after that from gastric crises. These attacks lasted from two days to as long as ten weeks, with variable intervals between them. They began quite suddenly, and consisted of loss of appetite and frequent vomiting, first of blood and then of clear fluid. The vomiting might take place as frequently as twelve times in the twenty-four hours, and during that time two quarts of fluid might be brought up. Each attack was attended with intense pains in the epigastrium, but without the slightest tenderness on pressure. The temperature during the attacks did not rise above 99° F. Immediately an attack was over the appetite became exceedingly good, and the weight lost was rapidly regained. I saw him during an attack. The knee-jerks were present and equal, the plantar reflexes present and flexor in type; the pupils, rather large, reacted both to light and accommodation, and there was no visual defect or contraction of the fields of vision; Romberg's symptom was absent; there was no zone of skin anæsthesia or tenderness of the abdomen.

The attacks of vomiting in this case were typical of those of gastric crises, in particular the association of repeated vomiting and intense pain in the stomach without any tenderness on pressure, and the diagnosis was supported by the presence of lightning pains. The only drug which controlled the attacks was morphia administered hypodermically. Three years subsequently the gastric crises gradually disappeared, though the lightning pains continued, and, as so often happens in these cases, the man had developed a tendency to become a morphino-maniac. The only physical evidence of tabes which had developed was Romberg's sign.

The case also illustrated the fact that some general systematic syphilitic infection took place, though the only outward sign of the disease was the initial sore.

Another case of gastric crises was interesting in presenting

a combination of symptoms—ocular paralysis, gastric crises, and loss of knee-jerks. It was that of a married woman, aged 27, who five years previously had suffered from symptoms very suggestive of syphilis. For two years she had had lightning pains in the legs, and ten or eleven attacks of repeated vomiting accompanied by severe pain in the stomach. For one week she had also suffered from double vision when both eyes were open. On examination it was found that the knee-jerks were absent and that the left external rectus muscle was partially paralysed; the pupils reacted to light and accommodation, and there were no other physical signs of tabes. Under the administration of iodide the ocular paralysis cleared up in two months, but the other signs and symptoms persisted. She was seen on several occasions during an attack of vomiting, and the absence of any superficial or deep tenderness of the abdomen confirmed.

I have not met with any case of intestinal crises with present knee-jerks, but in the following case they were the first symptom of the disease. A man, aged 44, who had had a hard chancre twenty years previously, suffered from severe intermittent pain in the abdomen, each attack lasting from two to ten hours, two or three times a week. During the attacks there was no vomiting and no tenderness on pressure on the abdomen, but the bowels were never opened during their occurrence. These attacks, when I first saw him, had lasted about a twelvemonth, and had obliged him to give up work. For nine months he had also had lightning pains in the legs, and for seven slight incontinence of urine. On examination it was found that the knee-jerks were absent, Romberg's sign present, whilst the pupils, of moderate size, reacted to light and accommodation. He was examined on several occasions during an attack of pain, when the abdomen was found to be of natural shape, and there was no tenderness on pressure. He was given ♏ v. of tinct. cannab. indic., ♏ iii. of liq. arsen., and gr. ii. of alum. chlorid. three times a day after meals. This fortunately gave relief; the attacks gradually became less acute and shorter in duration, so that in six months' time he was able to resume work.

Transient paralysis of one or more of the external ocular muscles may, as is well known, be an early symptom of a case of tabes. In some cases, as in the following, it may be the first symptom—occurring before even the loss of knee-jerks. A man, aged 35, who had had syphilis eleven years before, complained of drooping of the left upper eyelid. On examination there was ptosis, but no paralysis of the left superior rectus or other muscle of the eye. No sign or symptom of tabes was present. The ptosis disappeared under the influence of mercury inunctions. Three years later he had paresis of the left rectus externus. It was then found that the knee-jerks could only be obtained on reinforcement.

The knee-jerks if lost in tabes may return in consequence of an attack of hemiplegia. This was first pointed out by Hughlings Jackson and Taylor, who published a case[1] in which this occurred, and in which four years later the knee-jerk on the non-paralysed side had again disappeared, whilst that on the paralysed side had become very much less, and they prophesied that later on the knee-jerk on the paralysed side would also disappear. Such a case in which the knee-jerks had both again been lost I published[2] a little later. The cause of the reappearance of the jerks is the reinforcement brought about by the pyramidal degeneration consequent on the cerebral lesion, whilst their subsequent disappearance is due to the progressive atrophy of the posterior root fibres.

The following case is of interest in regard to this matter. A man, aged 63, had suffered from syphilis thirty years before, and for seventeen years had pains in the legs, in attacks of variable duration, as if the muscles were pinched in a vice. Four years before coming under observation he had an attack of left hemiplegia, affecting the face, arm and leg. On examination he was found to have smallish pupils, reacting to accommodation but not to light. Romberg's symptom was absent. There was slight weakness in the lower part of the left side of the face, but practically none in the left arm or leg. The left triceps jerk was present, the right absent. Both knee-

[1] *Brit. M. J.*, 1891, ii, 57; 1894, i, 1350.

[2] *Ibid.*, 1899, ii, 853.

jerks were present, the right one being less marked than the left. There was no knee or ankle clonus. The presence of tabes was shown by the lightning pains and Argyll-Robertson pupils occurring in a man who had had syphilis, the presence of past hemiplegia by the paresis of the left side of the face and by the tendon-jerks above mentioned. The pyramidal degeneration was thus in evidence, though the motor symptoms had almost disappeared.

In connection with this possibility of the reappearance of knee-jerks lost owing to tabes, it is interesting to note that an arthritis does not bring them back. An arthritis, as is well known, produces a reflex atrophy of the extensor muscles passing over the joint and an increase of their myotatic irritability if the spinal cord is intact. But if an arthritis of the knee supervene in a case of tabes with lost knee-jerks, whether it be a tabetic arthropathy or due to other causes, the knee-jerk does not reappear on that side.

The following case is an illustration of what at first sight seemed to be an exception to this rule. A woman, aged 58, who twenty-four years previously had had symptoms very suggestive of syphilis, complained of stiffness of the left shoulder of six months' duration. She was found to have Argyll-Robertson pupils of medium size, absent knee-jerks, and static ataxy especially marked when the eyes were shut. There was no inco-ordination or defect of cutaneous or muscular sensibility in the arms. The left shoulder joint was enlarged and tender, with considerable limitation of movement and partial atrophy of the muscles passing over the joint. The left biceps-jerk was very brisk, the triceps-jerk absent. No tendon jerks were present in the right arm. On skiagraphic examination the head of the left humerus was seen to be distinctly enlarged though of normal shape and of the same density as on the right side. The arthritis—apparently of a rheumatoid nature—had reinforced the biceps owing to the fact that there was no tabetic affection of the upper part of the spinal cord.

Peripheral neuritis may complicate a case of tabes, as in the following case. A man, aged 34, who had had syphilis ten

years before, suffered for the five years before coming under notice from sharp, shooting pains in the arms and legs, which he attributed to rheumatism, as they were always worse in wet weather. For four years he had also suffered from ataxy, so that he could not go out in the evening and had to perform his ablutions sitting down. A year before coming under treatment his right foot "dropped," he could not dorsiflex it, and was very liable to trip up whilst walking; this gradually improved and got well in six months. A fortnight previously his right wrist "dropped," and he was unable to use his hand. On examination it was found that the knee-jerks and plantar reflexes were absent, cutaneous sensibility was deficient in the lower part of the legs and feet, Romberg's symptom was very marked, and that the pupils reacted to accommodation but not to light. In addition, there was paralysis of the extensors of the right wrist, thumb, and fingers, with loss of tone and electrical reactions of degeneration. There was partial anæsthesia of the outer and posterior surfaces of the forearm and back of the hand, thumb, and fingers. The nerves were not tender on pressure.

The patient was treated with large doses of iodide, massage, and electricity, and in two months almost complete recovery took place. The physical signs of tabes did not change.

The nature of this intercurrent peripheral neuritis, affecting first the leg and then the arm, was not apparent—possibly it was of syphilitic origin.

Progress of the Medical Sciences.

MEDICINE.

The existence of a physiological **albuminuria**[1] has now become a generally accepted fact, since it has been clearly demonstrated that the urine of all healthy persons contains albumin, although this may be present only in the most minute quantities. For instance, that deposit in urine which was

[1] *Deutsche med. Wchnschr.*, 1904, xxx. 50; Abstract in Schmidt's *Jahrbücher*, 1905.

formerly considered to be "mucus," or a "nucleo-albumin," has now been shown to be a combination of serum-albumin with certain substances which are able to precipitate albumin. Accurate analyses of urines have also demonstrated the presence of albumin, as such, in healthy individuals. This condition has been variously termed "simple," "idiopathic," "functional," or "essential" albuminuria. It is very important that a sharp distinction should be made between a merely abnormal albuminuria and an abnormal albuminuria which is caused by definite pathological conditions, a disease of the kidneys, and we must recognise that certain symptoms may be due to unusual conditions that are within the limits of health; that is, circumstances which are within the usual physiological limits. A comparison may be made on all fours with glycosuria. Just as sugar appears in the urine under certain unusual physiological conditions, so does albumin appear in the urine under certain conditions—unusual, but still within the limits of health. Thus, vigorous use of the muscles of the legs, taking and digesting a heavy meal, menstruation, a cold bath, great mental excitement, brain-fag, and similar causes may all result in the appearance of more or less albumin in the urine, according to the constitution and peculiarities of the individual. And yet these causes need not be considered pathogenic in such cases. Albuminuria under such conditions does, indeed, become pathological if it does not appear under extraordinary conditions only and does not disappear with them when they have been removed; that is, when albumin still continues to appear in the urine under normal conditions and in connection with the necessary strain of ordinary life.

As, however, physiological and pathological states may undoubtedly pass from one into the other, the consideration of this question must be confined solely to this one point of view. Thus, that form of albuminuria which is called "cyclic" or "orthostatic," and is caused by the change of position from the horizontal to the vertical, or by quiet walking, must be considered as being due to some slight irritation or inflammatory condition of the kidneys, because standing, sitting, and walking are all more or less necessary and perfectly normal things for us to do in our every-day existence. This cyclic albuminuria may certainly pass away and leave healthily functionating kidneys, but it may, on the other hand, proceed to a chronic diffuse nephritis.

In order to explain these physiological and pathological forms of intermittent albuminuria and cylindruria, it is generally accepted that there must be some peculiarity, either congenital or acquired, of the membrane surrounding the glomerulus. Senator points out that the theory of Leube, that it is all a question of an hereditary abnormality in the permeability of the glomerular membrane, is totally insufficient to explain these cases, and that we must also take into consideration the

vascular system with its variations in the velocity of the blood-stream and the blood-pressure, and, moreover, its extraordinary capacity to adapt itself to the ever-varying conditions of the particular organs or of the body in general.

Thus with the change from the horizontal to the vertical posture, and on standing up, there is a general slowing down of the blood-stream in the whole of the area drained by the inferior vena cava, and this is especially noticeable in the circulation through the kidneys. During this period of venous stasis albumin will appear in the urine of those who are constitutionally predisposed thereto, but it will always cease if care is taken to increase the velocity of the blood-stream by enlarging the arteries or increasing the force or rapidity of the heart beats—by muscular exercise for instance, or by taking a hot bath, and various other measures.

Nervous irritation and brain-fag also have a great influence upon the state of the renal circulation, and without any question cold baths have a profound influence upon the circulation of the blood in the kidneys; but we are at present entirely ignorant of the precise way in which these assist in the causation of albuminuria, but there is small doubt that there are certain morphological changes in the composition of the blood which express themselves in a very mild form of hæmoglobinuria. The various changes in the velocity of the blood-stream and in the blood-pressure which take place in the kidneys during digestion are as yet but little understood, and the experiments in this direction have been few, no particular attention having been paid to this point by Pavlow or those who have followed in his methods of research upon the digestive organs. It is obvious, however, that the increase in the quantity of blood that is determined to the area drained by the portal vein, and the increased pressure in the abdomen owing to the pressure of the food, must to a certain extent increase the pressure upon the renal veins, and thereby cause a damming back of the blood in the renal circulation. Nor, in conclusion, must it be forgotten that in adults recent observations have clearly shown that there may be an abnormality of the intestine, or an idiosyncrasy, that allows certain albumins foreign to the body to pass through the intestinal mucous membrane unchanged and, entering the general circulation as foreign albumins, to be excreted as such in the urine. The examination of the urine has shown that the foreign albumin, such as that taken in the milk of various animals, is first excreted, and then, in consequence of this albumin irritating the kidney as it is excreted, ordinary albuminuria is set up. Senator asks if it is not possible that in certain individuals the intestines may similarly allow some substance or substances to pass into the circulation, thereby causing a vaso-motor disturbance of the kidneys, just as is the case with urticaria due to some food that has been taken, and hence lead to an albuminuria.

Joachim[1] has recently published some researches on the varieties of albumin present in various pathological fluids of the body. The recognition and isolation of the various kinds of albumin have not only a theoretical value, but may lead to important results clinically, as aids to diagnosis and prognosis. After explaining his methods of analysis, he enters very fully into his results, the most important of which are the following facts:—By means of a faint acidulation with acetic acid he has separated from transudates and exudates, and often from albuminous urines also, an albumin body which is identical with paraeuglobulin, a substance that can be precipitated by dilute acetic acid without boiling. This body is found in much larger quantity in exudates than in transudates. When a very strong acidulation is made it is possible to precipitate from exudates and certain urines—even from urines free from any marked quantity of serum-albumin or serum-globulin—an albumin body which Joachim considers to be a nucleo-albumin. In the pleural cavity transudates and exudates are often found to be present at the same time. The transudates are more constant in their albumin content than the exudates, and the relative quantity of euglobulin is lower in fluid from a hydrothorax than in fluid from a pleuritic effusion. In the peritoneal cavity the greatest possible quantity of albumin and the highest proportion of globulin are reached in cirrhosis of the liver. In cancer the case is exactly reversed. When the variety of forms in which tuberculous peritonitis may occur is taken into consideration, it is not surprising to learn that the results of the proteid analysis in this disease are subject to great variation. The high specific gravity and the large percentage of proteids are a proof of the inflammatory nature of the disease. In his researches on human blood serum he confirms much that is already well known. In placental blood serum and blood serum from the umbilical cord the relative proportions of albumin and globulin are about equal, but Joachim finds considerable differences in the proportion of the euglobulin to the total globulins: thus in the umbilical cord euglobulin was 56.4 per cent., whereas in the placenta it was found to be 38.3 per cent. He also made the interesting observation that when a horse had been immunised with diphtheria antitoxin there was a very marked increase in the globulin at the expense of the albumin, and, further, that there was an increase in the euglobulin. In urine, since the discovery of these proteid bodies in the blood, he has invariably been able to demonstrate albumin and pseudo-globulin in the urine of nephritic patients, the albumin usually in larger quantity than the globulin. He was unable to discover more than the faintest traces of euglobulin in urines loaded with albumin, and in most cases none whatever was found. In amyloid degeneration of the kidneys the total amount of globulin was extraordinarily increased in proportion to the

[1] *Arch. f. Physiol.*, 1903, xcii., 558; Abstract in Schmidt's *Jahrb.*, 1905.

albumin, this increase being due not to the pseudo-globulin but to the euglobulin.

There are numerous researches being carried out at the present time, endeavouring to separate and identify the various globulins of the blood serum. Otto Porges and K. Spiro[1] have found that by fractional precipitation with ammonium sulphate three groups can be separated. The first begins to fall at 28 per cent., the next at 33 per cent., and the last at 40 per cent., the percentage at which precipitation begins being in each case sharply defined; and, although no definite chemical differences have as yet been found, there are some indications that this may be accomplished.

* * * *

Vignier[2] has described an epidemic of **benign infectious jaundice.** A company of soldiers mounted a battery on a piece of ground where there had formerly been a latrine, and amongst these men there occurred an epidemic of jaundice. He maintains that the probable cause of the epidemic was the bacillus coli communis, which must have retained its virulence for many years. The contagious nature of the disease was shown by the fact that five soldiers who had not assisted in working the battery, but who came in contact with them afterwards, contracted the disease.

The onset of the disease was not acute, for the duration of the various prodromal symptoms extended over three to fifteen days. The actual symptoms of the disease, however, lasted only three or four days, but convalescence was extraordinarily protracted. The chief symptoms were rapid loss of strength, loss of appetite, headache, jaundice, abdominal pain, constipation, colourless or bile-stained fæces, and diminished urine. A slow pulse and some fever completed the picture of the disease, and these symptoms were present in all of the cases observed. Towards the end of the epidemic some of the patients began with diarrhœa, but this was followed by a more prolonged constipation. The colour of the stools varied according to the jaundice, and ranged between absolute colourlessness and an almost black colour. There was no meteorism, the liver was not tender, and, if anything, was diminished in size rather than enlarged. The pain was felt chiefly in the epigastrium, and was very severe for three or four days, the tenderness to palpation remaining for a longer period.

Vignier in a later paper discusses the origin of the pain. He does not consider that it can be attributed either to the stomach or the liver, but says that it is due to a swelling of the pancreas, because that organ lay immediately beneath the

[1] *Beitr. z. chem. Physiol. u. Patholog.*, 1903, iii. 4 and 6; Abstract in Schmidt's *Jahrb.*, 1905.

[2] *Arch. de Med. et de Pharm. mil.*, xliii. 6, p. 429; Abstract in Schmidt's *Jahrb.*, 1905.

area of tenderness. The presence of jaundice might have been urged to account for the bradycardia, but he prefers to attribute this also to the swelling of the pancreas, the enlargement of the pancreas being supposed to irritate the solar plexus and thereby slow the pulse; at any rate, such a result has been shown to occur experimentally—the so-called "symptome d'irradiation solaire" of Lacquel-Lavastine.

The nomenclature of this disease is due to a comparison of it with Weil's disease, often termed **infectious febrile jaundice**, and of a most malignant character. Hitherto Weil's disease has not been observed at an earlier age than 8 years, and 90 per cent. of the cases have occurred in men between the ages of 20 and 30, but Brüning[1] has now placed on record an unique case occurring in a child under 12 months. The case was an infant 4 months old, which was diagnosed during life as having Weil's disease, and the diagnosis was verified by a *post-mortem* examination.

Pathologically the case was primarily a fatty degeneration and fatty infiltration of the liver, and a well-marked diffuse purulent inflammation of the parenchyma of the kidneys. The lymphatic follicles of the intestines were swollen, and there were an infiltration and necrosis of the mucous membrane surrounding hemorrhages. Cultures were made from the blood both during life and at the *post-mortem* examination with resulting cultures of bacillus proteus fluorescens, the organism which has already been established by Jaeger as the cause of Weil's disease in adults. When this organism is injected subcutaneously and intraperitoneally in animals, there seems to be no formation of toxin by the bacillus, but if, on the other hand, animals are fed with this organism an acute enteritis resulted, showing that Weil's disease is probably caused by an infection of the alimentary tract. NEWMAN NEILD.

SURGERY.

During the last ten years **prostatectomy** has become an established operation, and with a more accurate appreciation of the pathology brought about by surgical aggressiveness there has been a diminution of mortality following the operation, and an increase of its scope of utility, particularly in the hands of certain surgeons who seem endowed with natural aptitude for success.

A recent number of the *Annals of Surgery*[2] was devoted almost entirely to this subject, and we may profitably analyse the views of our American brethren who have kept to the front in this work, more particularly because they have a leaning towards the perineal route of operation, like French surgeons; the tendency of British surgeons being towards the suprapubic route from the able advocacy of McGill and Freyer.

[1] *Deutsche med. Wchnschr*, 1904, xxx. 35, 36; Abstract in Schmidt's *Jahrb.*, 1905.

[2] *Ann. Surg.*, April, 1905.

Some Points in Pathology.—Dr. P. M. Pilcher has made a study of twenty-three prostates removed by operation, and refers to the fact that observers, or cases, differ as to the amount of glandular elements present from one-third to five-sixths of the substance of the gland. He finds that prostates removed for urinary obstruction present three types, each of which may be present whether a history of gonorrhœa or cystitis be obtainable or not. In the greatly *enlarged soft prostate*, the illustrations of which are now quite familiar to all medical readers, the anatomical proportions are very variable; but the mucous membrane lining the prostatic urethra is intimately related to the gland itself, and can only be separated from it with difficulty. The *atrophic* form, on the other hand, may be even smaller than normal, yet retention is a prominent clinical feature in such cases. The third variety is of a *mixed* type, intermediate between the other two. Microscopically, the most striking change from the normal is the relative and absolute increase in the amount of glandular tissue in parts with cyst-formation; and the ducts are filled with retained secretion, and often with degenerated epithelium, leucocytes, amylaceous bodies, and calculi. With this there is increase of the connective tissue and muscular structures to a variable extent, with small round-celled infiltration, and sometimes areas of extravasated blood.

We shall refer to the question of potency shortly, but from an anatomical standpoint F. S. Watson states that the level of the lower border of the urethral aspect of each lateral lobe is a little above that of the floor of the prostatic urethra, and consequently above the level of the ejaculatory ducts. Any operation, therefore, which does not involve the floor of the prostatic urethra will not injure the ducts. In the case of a middle lobe being present, it is intravesical, and outside the sphere occupied by the ducts.

Contraction of the Neck of the Bladder as a Cause of Prostatism without Enlargement of the Prostate.—Dr. Charles H. Chetwood describes a condition which is perhaps not fully recognised, although we do not think the examples in his tables of thirty-six cases should all come under that head. He says that contracture of the neck of the bladder is a common cause of the train of symptoms of prostatism, characterised by urgency and frequency of urination, with pain and more or less retention. The contracture is simply a fibrous stenosis of the vesical orifice, induced by chronic inflammation, and often gonorrhœal in origin. The observation is not new, for Sir Henry Thompson recognised in 1883 that there could be obstruction to the bladder outlet without prostatic hypertrophy. The condition has also been recently noticed by French observers, and must be borne in mind as a common cause for vesical obstruction, and a frequent explanation for "prostatism without enlargement of the prostate."

Has the Catheter a Place in Treatment?—This question has to be discussed in all seriousness in the present day. P. Thorndike writes that it is his custom to have long talks with these patients, and to offer a choice of the two methods of procedure, giving his bias in favour of the catheter for the immediate future. He protests against the catheter being carelessly thrown aside for procedures of a more radical kind, although the day may come for the performance of prophylactic prostatectomy. F. S. Watson states, on the other hand, "the really essential point for those who are experts in this special province is to bring home the fact to the profession at large that the operative treatment of prostatic hypertrophy has been brought to a sufficient degree of perfection to make it evident that the patients should be given the benefit of it, and should not be submitted to the dangers of catheterism as they have been in the past." He believes that the mortality attending the catheter treatment is even greater, except in the class of people of the best social status, than that attending prostatectomy, and that the mortality of perineal prostatectomy, were it practised at a sufficiently early age of the malady, would certainly prove to be far less than that associated with the catheter treatment in all classes of persons. L. S. Pilcher says, "Shall not the use of the catheter first be tried?" Certainly as a temporary resort, but, in the light of present experience, always rather under protest than as a measure possessing the full recommendation of the surgeon. There is probably a judicious mean, and if the results of operation were universally as successful as they are in the published series of a few operators no doubt the profession at large would soon toe the line. But the standard in surgery will always be the consistent average results, and not the ideal best results of a few experts. Manual dexterity counts for much in prostatectomy, and no surgeon seems to have published cases in which he has failed to remove the prostate; and half-measures are, as a rule, worse than useless.

The Question of Priority.—The claimants to surgical priority are very jealous of their claims, and are apt to vie with little Jack Horner in their egotistical conclusions. The prostate has proved a surgical plum, and several have been the claimants to priority in pulling it out with fabulous self-satisfaction. Dr. Francis S. Watson gives Gouley, of New York, the credit for originally and definitely proposing perineal prostatectomy in a publication in 1873: "Gouley's operation is that of the rapid finger enucleation done through the sides of the prostatic urethra by the forefinger tip introduced into the latter through an ordinary external perineal urethrotomy incision. It is the operation which I have practised from time to time since 1889, having learned it from the verbal instructions of Dr. Gouley in 1884. It is the method which I still prefer."

With regard to suprapubic prostatectomy, it does not now

appear that Mr. Freyer's claim to an original operation is justified by the facts. Watson figures a complete prostate, which he removed in one mass, together with the prostatic urethra by the suprapubic route in 1897, or some three or four years before Freyer published his operation. "The fact that I removed the hypertrophied gland in one mass, together with the prostatic urethra, did not strike me then, nor does it seem to me now, to constitute a new procedure that could be considered as distinctive in any essential sense of the word from the original suprapubic prostatectomy of McGill." "The credit of suprapubic prostatectomy belongs to Belfield and McGill." Eugene Fuller lays claim to having performed the operation, and gives photographs of specimens prior to Freyer. He published his paper in New York, in June, 1895. His discussion is too long to follow in detail, but his assertions are interesting and of such a character that Freyer must either withdraw his claim or meet the statements. Briefly they are as follows: In the spring of 1900 Fuller published a book incorporating his paper of 1895. In August, 1900, Dr. R. Guiteras read a paper in Paris before the International Medical Congress giving his slight modification of Fuller's operation, that of introducing one or two fingers into the rectum. On his way to Paris he called on Mr. Freyer and fully acquainted him with Fuller's operation and his own modification. Guiteras wrote: "Dr. Freyer was very much pleased with the description of the operations, and said that he would try the method." Freyer's first case of suprapubic prostatectomy entered hospital shortly after Dr. Guiteras's instructive visit, and Freyer, showing himself an apt student, operated successfully, following the exact method taught him by the New York surgeon. This is the gist of the argument, and for further facts in its support the paper may be consulted.

Anæsthesia.—According to Pilcher chloroform is in general to be preferred for the aged. Young has reported ten cases with the use of spinal cocainisation without unpleasant sequelæ, and Tinker has removed two prostates under local anæsthesia with eucaine and adrenalin. Lilienthal says in most cases nitrous oxide may be used at first, and it will frequently suffice, but may be followed by ether if necessary. J. Wiener, jun., has operated on ten cases under nitrous oxide alone without mortality, the average time taken being ten minutes, and the extremes five and nineteen minutes. He grants that a good deal of physical strength and some experience are needed.

Preliminary Cystoscopy.—There is common agreement that this is unnecessary if the suprapubic operation be performed, but the majority of those who prefer the perineal route think cystoscopy advisable. Lilienthal and Wiener, who prefer the suprapubic operation, deprecate cystoscopy. Pilcher, who describes a perineal operation on the lines of the technique of Proust, disapproves cystoscopy. On the other hand, in connection with the perineal operation, Young says: "I wish

to state again my belief in the great advisability of a careful preliminary cystoscopic examination. In this way only have I been saved from several serious blunders." A very complete description of the cystoscopes and their uses is given by J. Cunningham, jun.

The choice of route—suprapubic or perineal?—On the whole, the opinion seems to be equally divided as to the preferable route. Young and Pilcher prefer the perineal method, Lilienthal and Ruggles prefer the suprapubic, whilst Watson and Fuller perform both operations, the former doing the perineal operation in two-thirds of his cases, and the latter the suprapubic operation in the same proportion of the whole.

Mortality.—This is probably represented in its most favourable aspects. Eugene Fuller has had a mortality of late of only 4 per cent. for the better class of patients, and 5½ to 6½ per cent. for hospital patients. Young has had four deaths out of 75 operations, and Pilcher two out of 23. A mortality of 5 to 10 per cent. must be regarded as the minimum, the perineal operation probably having the smaller mortality. Pilcher has collected the statistics of several operators, and they work out thus:—Small median perineal incision with finger enucleation unaided by sight — 162 cases, five deaths; free transverse perineal incision, enucleation under visual control—220 cases, ten deaths; suprapubic enucleation (Freyer)—107 cases, five deaths.

Prostatectomy and Potency.—There is general agreement that if care be taken so as to avoid injury to the floor of the urethra the potency of the individual is not lessened as a rule, and in some cases it is improved when previously impaired. If, however, the operation be not carefully performed, then potency ceases. To preserve the sexual powers as far as possible it would seem desirable in the suprapubic operation to enucleate the separate lobes from within the commissural capsule, rather than the prostate as a whole with its attached urethra; and in the perineal operation to avoid injury to the floor of the prostatic urethra by keeping the finger with its back towards the urethra and enucleating upwards and outwards. Horwitz has advanced the theory that impotency may follow prostatectomy independently of injury to the ducts, due to disturbance of the important nervous mechanism of the gland by the trauma.

Restoration to Voluntary Micturition.—Young, in a series of seventy-five cases, states that they can all void urine naturally, and that in only two cases is there any residual urine. Pilcher states that in over 60 per cent. of cases permanent restoration of the function results: he had one case of only partial relief out of 23.

Continence.—Ruggles concludes that incontinence is due to injury to the sphincter urethræ muscle at the level of the membranous urethra. It is therefore only likely to be met with after

the perineal operation. Young has found in seventy-five cases that incontinence is only temporary, not permanent. In one case incontinence persisted in the day-time. Pilcher had defective continence in two cases out of 23. Ruggles estimates the permanent incontinence as about 5 per cent., and states that the percentage has been rather high at Rochester ($7\frac{1}{2}$ per cent.).

Stricture.—This was formerly feared, but facts do not support the theory. Young has not personally observed any case, and in spite of the inevitable injury to the urethra Pilcher does not regard it as a sequel to be reckoned upon.

Fistulæ.—These may be suprapubic, perineal, or recto-urethral, and here the disadvantage seems to be with the perineal operation. Suprapubic fistulæ do not seem to give trouble, and heal sooner or later if they occur. Perineal fistulæ persisted in two out of Young's 75 cases. More serious, however, is the recto-urethral fistula, due to excessive perineal traumatism or sloughing from gauze drainage. Young had four cases, and was only able to cure them by first performing suprapubic cystotomy for temporary bladder drainage. It occurred to Pilcher on three occasions, and in one case it could not be cured, two-thirds of the urine passing into the rectum with each micturition, and being subsequently voided at stool.

Epididymitis and Orchitis.—These may follow either the suprapubic or perineal operations. In Pilcher's 23 cases it occurred six times, and ended in suppuration in two.

On the whole, therefore, it would seem that although the perineal operation has a lower mortality, it is subject to greater disabilities, and the functional results are not so constantly perfect as with the suprapubic operation. It is therefore probable that both operations will continue to be performed in the future, until it may be possible to diminish the disabilities following the perineal procedure.

T. CARWARDINE.

OPHTHALMOLOGY.

The operation of **excision of the eyeball** was practised with but little alteration from 1840 until 1885, when Mules suggested the evisceration of the eyeball and the introduction of a glass ball into the sclerotic. Frost's suggestion of excising the eye in the usual way, and inserting the ball into Tenon's capsule, was a great improvement, but was by no means invariably successful. In a fair proportion of the cases the ball was either not retained or caused some irritation.

As a substitute for the glass ball used by Frost in his modification of Mules's operation, Spratt[1] has recently used a paraffin sphere with success. Various substitutes for the glass ball have been tried, such as metal, vulcanite, and celluloid. Hard

[1] *Arch. Ophth.*, 1905, xxxiv. 123.

paraffin presents obvious advantages—it is cheap, it can be cut to any size, it cannot be broken, and it is easily held in forceps, so that no special "introducer" is necessary. The globe may be prepared in the following way:—Hard paraffin is melted and run into a test tube, and then sterilized in the usual way. When the paraffin has set the tube is heated slightly till the cylinder of paraffin can be slid into an antiseptic lotion. Balls of the required size are then carved. About 17 mm. is the most convenient size. The technique of Spratt's operation differs but little from Frost's, the essential thing being to suture the four recti over the ball with chromicised catgut. Tenon's capsule is similarly treated, and then the conjunctiva is closed over the two inner layers with a purse-string suture.

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Trans-illumination of the sclerotic as an aid to the diagnosis of intra-ocular tumours has been re-introduced with the advent of Professor Leber's instrument. This consists of an 8 or 10 volt lamp in a small closed case, held by a short handle. A glass rod, about an inch long, abuts against the lamp bulb; its other end, which is sheathed in vulcanite, projects from the metal case. When the end of this rod is applied to the sclerotic of the cocainised eye no light escapes laterally owing to the vulcanite sheath, but a considerable amount of light penetrates the sclerotic, and the observer at once sees the pupil illuminated with a red glow. This is easily perceptible, even if there is a ripe cataract, but if the instrument is applied over the area occupied by an intra-ocular tumour little or no illumination of the pupil is seen. The instrument is chiefly of use in those cases where it is sought to diagnose between a simple detachment of the retina and one due to a sarcoma of the choroid. It is a very great improvement on some of the previous trans-illuminators, in which a small lamp had to be kept cool by means of a "water-jacket," with a glass pane in one side which was applied to the sclerotic. Leber's apparatus gets hot after a time and must be rested, but there is usually time to examine the eye thoroughly before the end of the rod gets too hot to be borne by the patient. Swanzy[1] gives details of three cases in which it was conspicuously useful as an aid to diagnosis.

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The healing of incisions in the cornea differs essentially from the healing of "skin" incisions. Experiments on rabbits[2] show that in from five to fifteen minutes the wound is closed by a plug of fibrin which spreads out posteriorly into a fan- or mushroom-like expansion in the anterior chamber. This plug has its origin, not from the cut edges of the wound, but from the freshly secreted aqueous, which is highly albuminous. An hour after the operation the corneal epithelium begins to grow down into the wound. It is not mechanically carried into the wound

[1] *Ophth. Rev.*, Feb., 1905, p. 33. [2] *Arch. Ophth.*, 1905, xxxiv. 37.

with the knife, as Ranvier thought. There is no leucocyte infiltration whatever. In three or four hours spindle-shaped cells appear in the substantia propria and spread into the wound. On the fourth day the spindle cells in the wound have increased, and from these cicatricial tissue is eventually formed which presses out the ingrowth of epithelium. Considerable trace of epithelial ingrowth can be found for some months. It is a case of regeneration of connective tissue from its own elements. The plug of fibrin takes no active part in the regeneration. No trace of renewal of Descemet's membrane is visible for about a month after the operation, and its normal thickness is not acquired till after about four months. This delay is probably attributable to Descemet's membrane being a "hyalinisation" of the posterior layers of the substantia propria of the cornea and of the cicatricial tissue in the wound, the gradual result of its constant contact with the aqueous humour which reaches it through the stomata in the endothelial lining of the anterior chamber. Many of these facts are borne out by clinical and pathological investigation. Eyes lost after cataract extraction show pretty nearly the above changes in the incision, but in severe cases of irido-cyclitis there is much leucocyte infiltration in the posterior half of the corneal wound.

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Traumatic keratitis in the new-born. Amongst the first to draw attention to this condition were Thomson and Buchanan, in the *Transactions of the Ophthalmological Society, 1902 and 1903.* Since then they have collected nine more cases,[1] most of them from the Glasgow Maternity Hospital, at which institution a great number of rickety dwarfs are delivered. Sydney Stephenson records two more cases, one met with at the Evelina Hospital, the other occurred at Queen Charlotte's Hospital. Thomson and Buchanan attribute the frequency of these cases in Glasgow to the fact that Glasgow is notorious for rickets, and consequently for contracted pelves. The recorded cases show an agreement in the following particulars:—1st, nearly all have followed a difficult instrumental delivery; 2nd, generally only one eye is affected; 3rd, they are associated with other injuries — abrasions, bruises, sub-conjunctival hemorrhages, hyphæma, &c.; 4th, that a more or less characteristic form of corneal opacity is usually present. There are two forms, a temporary diffuse opacity and a permanent linear opacity. The first form is the more frequent, is due to œdema of the cornea, and passes off in a few days. The second form is due to rupture of the posterior elastic lamina of the cornea. The rupture is usually more or less vertical; sometimes there are two or more parallel ruptures. The grey streak left after the general œdema subsides gradually gets fainter, but with the pupil dilated it is visible for many months, and is probably

[1] *Ophthalmoscope*, June, 1905.

permanent. Besides the linear opacity which persists there is likely to be, in most cases, considerable refractive error, and it is probable that these lesions account for a good many cases of monocular astigmatism.

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Interstitial keratitis is relatively common in Bristol, and its intimate association with an injury to the eye must not be lost sight of. Text-books say little or nothing on the subject of injury being a determining factor, although many clinical observers are well aware of the fact. We have seen several such cases, and it is important to remember that a guarded prognosis must be given in all cases of injury where the patient suffers from congenital syphilis, more especially if he is out of health at the time. It seems possible that a good many cases of interstitial keratitis might be avoided altogether if this liability were borne in mind, and proper care and protection were afforded to what might appear to be trivial injuries. Why interstitial keratitis should in such cases also affect the other eye cannot be explained, but in non-traumatic cases the inflammation in the second eye is frequently more severe than in the first-affected eye, in spite of the fact that the patient has been under appropriate treatment all the time. It would appear from this that in nearly all specific cases an attack in the second eye is practically inevitable.

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The danger of using adrenalin too freely in ophthalmic practice is not sufficiently recognised. Experimentally it has been shown that the first effect of instillation of adrenalin is diminution of the intra-ocular tension due to constriction of the ciliary vessels and consequent decreased secretion, followed by a slight increase of tension. Where there is no predisposition to glaucoma this result involves no risk whatever. MacCallan[1] was among the first to report cases where adrenalin acted harmfully in glaucoma. In five instances the tension rapidly increased after its application. It is claimed by some, however, that if the instillation is repeated at intervals of half an hour regularly vaso-constriction is maintained and permanent reduction of tension is secured. But it must be stated that Grand Clément, who advocates this method, uses eserine in conjunction with adrenalin, and that he only uses it in recent glaucoma, which considerably discounts its therapeutic value. It appears to be particularly liable to act injuriously in cases of hemorrhagic glaucoma, and we have recently seen a case in which its action was unquestionably harmful. The physiological action of different preparations of adrenalin varies considerably, and some eyes are much more profoundly affected by the drug than are others. The ordinary strength of 1-1000 is certainly unnecessarily strong for all cases, except perhaps operations,

[1] *Tr Ophth. Soc. U. Kingdom*, 1903, xxiii. 374.

and it would be a good rule in all doubtful cases to commence with a 1-10,000 solution.

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The Services and colour blindness.—On the 10th of April Mr. Arnold-Forster stated that in accordance with the recommendations of the medical authorities, it had been decided to return to the former practice under which colour blindness was not regarded as a disqualification for a commission in the army.[1] It is to be hoped that after this most sensible concession the other regulations as to eyesight in the army will be framed on a more rational basis. At present a candidate with a considerable degree of hypermetropia may be accepted, when it would be safe to predict that in a very few years spectacles would become an absolute necessity. The importance of recognising visual defects is far greater, of course, in the navy and mercantile marine. In June, 1904, the P. & O. steamer *Australia* was wrecked at the entrance to Port Philip Harbour.[2] The pilot was found to have 3.0 D. myopia and some astigmatism. His colour vision as tested by Holmgren's wools was normal, but "tested by luminous discs considerable illumination was required to elicit a satisfactory discrimination of some colours." A point of considerable interest is that *the same pilot was in charge* when, on March 10th, 1904, another steamship was wrecked at the entrance to the harbour! The Marine Board of Victoria has made the following regulation for pilots since this accident:—"That the vision must be $\frac{6}{6}$ in each eye without glasses, and that the error of refraction must not exceed 1 D., tested under a mydriatic: colour vision is to be normal." It appears probable that the pilot in question had, as well as the myopia, some "shortening of the spectrum," that is to say, inability to appreciate the ends of the spectrum properly. Inability to appreciate the rays of lowest refrangibility at the red end would not be shown by Holmgren's wool test. This test, according to Edgridge-Green, is inaccurate as applied by the Board of Trade representatives. According to him, about 40 per cent. of those who appealed against their rejection were found to have been wrongly excluded. The "lantern test,"[3] devised by Edridge-Green, has the advantage of detecting those who have a shortened red spectrum. A lantern is provided with thirteen slides, seven of coloured glass and the rest modifying glasses. The chief feature is the use of two red slides, which look alike to the normal sighted, but one of which spectroscopically is both red and green, and therefore is seen as green by those who have much shortening of the red end of the spectrum.

C. H. WALKER.

[1] *Brit. M. J.*, 1905, i. 846. [2] *Lancet*, 1904, ii. 1202.
[3] *Tr. Ophth. Soc. U. Kingdom*, 1903, xxiii. 206.

Reviews of Books.

The Historical Relations of Medicine and Surgery to the End of the Sixteenth Century. By T. Clifford Allbutt, M.A., M.D. Pp. xvi., 125. London: Macmillan & Co. Limited. 1905.

This little book consists of an address delivered at the St. Louis Congress in 1904. It may be read with profit by all medical practitioners, and cannot fail to excite and hold the interest of its readers. It is enough to say to those who are already conversant with the author's writings that it is characterised by wide erudition and a marked historical sense, and written in the racy and incisive style which we expect from him. The book is practically a compendium of the history of medicine, and without being unduly condensed, and in consequence dry, it is yet remarkable for the amount of information which is contained within the compass of about a hundred and twenty pages. The theme is sufficiently indicated by the title, and is one of very present interest; for, as Prof. Allbutt shows, we are returning in practice, and that merely by the natural force of events, to the union of medical and surgical work in the same hands, in spite of the fact that such unity in practice has never been formally recognised by the colleges, whose existence and names perpetuate a distinction which he shows was purely artificial in origin and has been mischievous in result. For he has no difficulty in proving that in Greek and Roman times medicine and surgery were practised by the same man, and each gained from the association. Whether he is correct in further looking upon surgery as the active, living and inspiring part of medical science is perhaps more open to question. It was in the Middle Ages that the divorce came, arising from the mistaken notions of dignity that then prevailed and led to all manual work being regarded as degrading; and we should suggest partly also from the tendency for purposes of mutual support and protection to associate all workers at one art or craft into a guild or close corporation, and the guild once formed, there was the natural result that appears inherent in all trade associations – to make rules restricting the members of each guild to certain activities, in order to prevent them from infringing upon the similarly restricted work of other guilds.

Prof. Allbutt shows clearly the evils which arose from this unnatural division of medicine and surgery, especially to the detriment of the former, which was cut off from its experi-

mental side. Perhaps the absurd notion that the practice of medicine is essentially superior to that of surgery has already died a natural death. If there be any that still cherish such an idea they will do well to study this work. Certainly surgery has in these days taken an ample revenge for the slight so long cast upon it by medicine by taking from the physicians an ever-increasing proportion of their work. Prof. Allbutt points out the mischief of such artificial constraints upon a man's natural bent in his work, and shows how mainly by the growth of specialism the old divorce between medicine and surgery has been perforce done away with. We may conclude, however, with a word of comfort to those who may fear that the craft and calling of a physician is in danger of extinction. The author does not propose to incontinently do away with physicians. The varied nature of medical work and of the mental acquirements needed for it make the division of labour into medical and surgical practice one which, not crystallised by artificial restraints, but left to its own free development, is natural and will endure. We strongly recommend this book to the perusal of our readers as one which is certain to interest them. Mention should be made of the good index.

Applied Anatomy. By EDWARD H. TAYLOR, M.D. Pp. xxvii., 738. London: Charles Griffin and Company Limited. 1904.

This is the most complete work of the kind which we have seen. It contains over 700 pages. It treats the subject carefully, methodically, and fully from beginning to end. Not only is it interesting and useful to the student working for his finals, but it is a book we feel sure which will be used by surgeons as a work of reference.

While the student is still in the dissecting-room it is generally a mistake for him to become too enamoured of surgery, and especially does it waste his time to make a practice of going to operations; but there is no doubt that this book will appeal to him not only from the interest it adds to his anatomical work, but because it will be read as a relaxation from what is sometimes considered the monotony of anatomy. About the work itself, there is not much to say by way of description. It takes the parts in regions, runs over the main anatomical points, and then in a way which only an experienced surgeon could have done it points out the various injuries and diseases to which these parts are liable, and the importance in each case of the knowledge of the anatomy in diagnosis and treatment. The illustrations are numerous, artistic and particularly clear. The book everywhere bears the stamp of long and patient work, and is one which is sure to quickly come into general request.

On the Development and Anatomy of the Prostate Gland. By W. G. RICHARDSON, M.B., B.S. Pp. xii., 121. London: J. & A. Churchill. 1904.

The author was awarded the Heath Scholarship by the Council of the Durham College of Medicine for this essay, which deals not only with the anatomy and development of the prostate, but also with its diseases and their surgical treatment.

The anatomy, comparative anatomy, and development of the gland are minutely described and amply illustrated. The illustrations, derived in nearly all cases from the author's original drawings, are excellent. We had an opportunity of seeing many of the original drawings and the specimens from which they were made at the Oxford meeting of the British Medical Association in 1904, and we much admired them. Those showing the anatomy of the internal organs of generation of various animals were specially interesting and instructive.

In considering the causes of senile enlargement of the prostate, the writer dismisses as improbable most of the causes which have been hitherto suggested, including previous gonorrhœa. He believes that adenomatous changes in the gland are a normal sequence of declining years, and that hypertrophy is an excessive change of similar kind.

In view of recent discussions on the question as to the completeness with which the prostate is removed in the operation of supra-pubic prostatectomy, it is interesting to find that the author believes it is not possible to completely remove the gland without damaging its fascial sheath containing the large veins of the prostatic plexus. A case is cited and a specimen figured which support the contention that the operation called total extirpation is not in reality what it is supposed to be, and that a bed of prostatic tissue is always left behind when the gland is removed.

We may pronounce the work as a whole to be very readable and instructive.

Methods of Morbid Histology and Clinical Pathology. By J. WALKER HALL, M.D., and G. HERSCHEIMER, M.D. Pp. 290. Edinburgh and London: Wm. Green & Sons. 1905.

This book is well adapted to its purpose, which is to serve as a practical guide for workers in pathological histology and clinical microscopy. The various methods of hardening tissues and of cutting and staining sections for microscopic investigation have now become so multifarious, and in many cases so complicated, that no workers are thoroughly conversant with all of them, nor is it necessary for them to be so. The use of a book of this kind is an absolute necessity when it is desired

to employ some unfamiliar process, and it is therefore a most important point that the descriptions of methods should be full and clear, in order that the reader may be able to readily apply them and obtain constant results. We think that the conditions are fulfilled in this work, which gives a very complete and lucid account of the numerous staining processes, not only of those in common use, but of the most recent additions and of the special methods employed for the investigation of special tissues. The procedures for staining micro-organisms and for examining pathological deposits, exudations and secretions, are also included in it, and we can thoroughly recommend the book as a sound practical guide and a most useful addition to the laboratory bookshelf.

A Text-Book of Medical Practice for Practitioners and Students. Edited by Wm. Bain, M.D. Pp. xxiv., 1011. London: Longmans, Green & Co. 1904.

This work is by several authors, and is on a novel plan, as short accounts of the anatomy, histology, and physiology of the systems or organs concerned are prefaced to the description of the various groups of diseases. At first sight this does not seem a very feasible scheme, as the amount of matter to be got into a text-book which is to cover the whole field of medicine is so great that to accomplish the task at all adequately within the limits of one volume is a difficult matter. We are bound to state, however, that the authors have achieved their task with a very great measure of success. There can be no question of the importance to the student of his bearing constantly in mind the anatomical and physiological knowledge he has painfully acquired when he is confronted with the problems of clinical medicine. By the time the student has become a practitioner experience will have impressed this upon him, but then he may find that his knowledge of the earlier subjects of the medical course has become rusty and needs refreshing. Both the student and the practitioner will find their needs in this respect met in the volume before us. The prefatory sections are not lengthy, contain all the essential facts, and are brought up to the level of the latest work in physiology. Being printed in smaller type than the strictly medical part of the text, much information is got into them; at the same time, this type is clear and there is no difficulty in reading it.

Of the medical sections we can also speak favourably, and have found the required information on many points for which we have consulted the book. Necessarily a treatise on medicine in one cannot compete in fulness with those in many volumes, and the need for condensation with the supply of the greatest possible amount of information involves a continuous statement of facts which demands close attention in perusal and occasionally makes the text difficult reading. The book strikes us as a

very good practical guide to medicine; the descriptions of disease are terse, and the salient points in each are well brought out and impressed upon the reader's attention. The sections on pathology and diagnosis are sound, and the advice as to treatment good; in fact, some of the sections on treatment seem to us particularly good, especially that the course to be adopted is made clear and no space is wasted by ambiguous directions. The book is well printed in good type, and although the page is a large one the volume is not unduly bulky, and can be held with comfort. The illustrations are mostly confined to the anatomical and histological sections. The chapter on tropical diseases should be mentioned as an eminently useful one. In conclusion, we can confidently recommend the work as fulfilling well the purposes for which it is intended.

Hysteria and Neurasthenia. By J. MICHELL CLARKE, M.A., M.D. (Cantab.), F.R.C.P. Pp. ix., 298. London and New York: John Lane. 1905.

That the second number as well as the first of this series of Practitioners' Handbooks should have been entrusted to a local practitioner is a compliment to the Bristol School, but that the selection was amply justified is proved by the wholly admirable work which Dr. Michell Clarke has given us. The phenomena of hysteria have been known and separately recognised in a more or less perfect degree for long past, and good descriptions of the symptom-complex exist in our own and many other languages. The continued evolution of neurology, however, has made more extensive the area of what is now included under that conventional title, and has gone some way towards explaining the nature of the symptoms. Dr. Clarke, speaking from his own large experience and from his acquaintance with current medical literature, gives a satisfying account of all that is known for certain about this polymorphous malady. In accordance with the statements in the preface, he confines himself to the clinical side of the question, and avoids discussing the transcendental and even the theoretical points involved in the abstruse problem of the essential nature of hysteria. Though not in keeping with the general plan of the book, we should have been interested in learning more fully the views of so learned a neurologist as Dr. Clarke on the pathology of hysteria, of which one may truly say that up to the present *stat nominis umbra*. Upon the more practically important point of diagnosis, general and differential, Dr. Clarke may be studied with pleasure and profit, so ably has he handled this exceedingly difficult subject. In the matter of treatment, the most precise instructions are laid down for the management of these cases, which so often baffle both the medical attendant and friends of the patient.

Interesting as is the division upon Hysteria, we are, however, inclined to assign a higher value, if possible, to the section upon Neurasthenia. So recent has been the recognition of this ubiquitous disease, that we have no hesitation in saying that hitherto no really adequate and up-to-date account thereof has been published in English before the present delightful treatise. Such accounts as we have had provided for us are so marred with vagueness of expression as to leave a correspondingly vague picture in the mind of the reader, but no vagueness is apparent in Dr. Clarke's masterly exposition of the etiology, symptoms, and treatment of this newly-discovered old disease. We do not remember ever to have read any medical treatise with such plenary satisfaction, and would strenuously urge every practitioner to read it both for pleasure as well as instruction. The book appeals to all classes of practitioners alike, for the diseases herein treated, elusive and deceptive shadows, haunt the domains of the surgeon and gynæcologist hardly less than that of the physician.

The book is printed on good paper in clear type. There are many valuable illustrations, prepared from photographs of patients. The misprints are trivial and comparatively few, easily rectified in another edition. Dr. Clarke's vocabulary is extensive, his diction extraordinarily illuminating, his sentences well turned, lucid, and grammatical. The book has a good index, and is altogether meritorious in a high degree.

Die Krankheiten des Verdauungs Kanals (Œsophagus, Magen, Darm), Ein Leitfaden für Praktische Ärzte. Von Dr. PAUL COHNHEIM. Pp. 247. Berlin: S. Kaiger. 1905.

The object of this book is to provide the general practitioner with a short manual of diseases of the alimentary tract, and to give him an account of the newer methods of investigation and treatment. At the same time the author has restricted himself to the descriptions of those methods of diagnosis which do not require any very elaborate apparatus or the use of an extensively-equipped laboratory, but can at once and readily be carried out in the routine of daily practice. His aim is to describe methods simple in themselves, but by whose means, if properly applied, a complete and accurate diagnosis can be arrived at. The author has worked for many years in Dr. Boas's (of Berlin) clinic, and has therefore had a wide experience.

He lays stress upon subjective symptoms, pointing out that by the history of the illness and a careful analysis of symptoms one may often proceed far towards the diagnosis. There is no doubt that the tendency has been of late, from the importance attached to the chemical investigation of the gastric contents, to pay insufficient attention to symptoms in gastric disorders,

and it may further be remarked that these chemical studies have enabled us, after carefully correlating their results with symptoms, to make a more accurate use of the latter. The author attaches considerable importance in the diagnosis of functional from organic diseases of the stomach to the absence of severe pain (gastralgia) in the former.

There is a good section on the subject of erosions and fissures in the pyloric region of the stomach which covers somewhat new ground, as it is the outcome of recent observations. The author does not admit that hyperchlorhydria and hypersecretion are primary causes of pyloric spasm, which again produces gastric dilatation; but on the contrary holds that there is always some pyloric lesion first, and that these other phenomena are secondary to it.

There is a good section on Cancer of the Stomach, and, speaking generally, we consider the first part of the book, which deals with diseases of the stomach, better than the second, which is concerned with those of the intestines. This is partly due to the fact that the second part is much shorter, and therefore the subject is necessarily treated briefly. We should allude, however, to the really excellent chapter on Constipation, in which the author gives a good practical division of the different stages in the course of chronic constipation and much useful advice as to treatment.

A short section on Diseases of the Rectum, diet-tablets for the different disorders treated of in the whole book, and epitomes of methods of treatment and of symptoms complete the work, which has also an index. There are a few illustrations of the microscopic appearances of the deposits from the gastric contents and of the fæces.

In conclusion, this seems to us an excellent manual, and that the author has succeeded in his task. The section on Diseases of the Stomach is especially good. The book is thoroughly practical, clearly written, and the advice as to treatment marked by sound sense and wide knowledge. Full and careful directions are given as to the treatment of each disease. The advice as to diet is of course adapted to German habits of life, but any intelligent reader can obtain the necessary rules from it. We consider this an excellent book for any practitioner who reads German, and one from which he can derive considerable help in his daily work.

The Open-Air Treatment of Pulmonary Tuberculosis. By F. W. Burton-Fanning, M.B.Cantab. Pp. vi., 176. Illustrated. London: Cassell & Company, Ltd.

It is hardly possible to write anything new in regard to the sanatorium method of treating pulmonary consumption, but Dr. Burton-Fanning has given a succinct and very readable

manual describing the main points in the modern sanatorium treatment. Not the least instructive portions are the opening chapters on the etiology and symptoms of the disease, and the author lends his support to the theory of latent tuberculosis, and considers that the bulk of mankind are infected before the conditions arise which result in the active development of tuberculosis of the lungs. In the section on "Requisites for the Treatment" much stress is laid on simpler buildings as affording all that is necessary. "Any good-sized room will do for the patient, so long as there is abundance of window-space. . . . Elaborate buildings are not necessary." Anyone desiring a reliable manual, giving a brief and unbiassed resumé of the sanatorium treatment with practical information on the different methods now in vogue, will find Burton-Fanning's book an accurate and authoritative guide.

Vaginal Tumours, with Special Reference to Cancer and Sarcoma. By W. Roger Williams. Pp. viii., 92. London: John Bale, Sons and Danielsson Ltd. 1904.

This work forms a valuable contribution to the literature dealing with diseases of women. In a comparatively small space the author has succeeded in presenting a very lucid and complete account of the subject of the new formations met with in the vagina, with a clear and accurate account of the pathology of each variety.

He remarks the small liability of certain parts of the Müllerian system, notably the vagina and Fallopian tubes, to tumour formation when compared with other parts, such as the uterus. This, in his opinion, seems to show that functional peculiarities influence tumour formation more than the developmental origin of the organ involved. He points out that the rare incidence of cancer in the vagina is rather against the irritative theory of its production, and shows that it is rare in prostitutes, and also in connection with either the wearing of pessaries or in connection with prolapse and invagination. He gives a very interesting account of vaginal cysts, especially as to the production of cysts of the Wolffian ducts and also those derived from the Mullerian system.

We can recommend a careful study of this work to anyone who wishes to gain information on the subject. The numerous references make the consultation of the various authorities quoted an easy matter.

Diseases of the Ear. By James Kerr Love, M.D. Pp. xvi., 339. Bristol: John Wright & Co. 1904.

The *raison d'être* of this book would appear to be the series of stereograms illustrative of the anatomy of the temporal bone exhibited at the end, for although a large, expensive, and

attractive volume has been produced, apart from these there is nothing new, and the letterpress does not contain more reading than some of the quite small manuals. We are inclined to think that it would have been better had the author brought out these in the form of a small atlas instead of adding another expensive text-book to those already in the field. Useful as these stereograms are, the only way for him who would operate on the temporal bone with satisfaction to himself and safety to the patient is to chip away at the bone itself. We must say that the book is most lucidly and delightfully written, the general get-up excellent, and many of the stereograms very beautiful. The first chapter deals with anatomy and physiology, the description of the internal ear being more easily explained than in any anatomical text-book. Under the physiology is a dissertation on the theory of harmony, which appears to us quite out of place in a work of this kind. Under diagrams and methods of examination all the regular means at our disposal are clearly described. Prognosis is considered under two headings, (1) Hearing and (2) Danger to Life. Treatment under three headings, viz. (1) The Prevention of Disease, (2) The Management of Deafness not Associated with Ear Discharge, (3) The Management of Suppurative Disease within the Temporal Bone. The description of the diseases of the ear are taken in the usual order, those of the middle ear, non-suppurative and suppurative alike, being dealt with in one chapter—the former, we think, too briefly, the latter, with its complications, at much greater length, forming the best and indeed the greater part of the book. The author endeavours to impress upon the reader the importance of following cases of suppuration to a satisfactory termination, viz. cure. We cannot congratulate the author on the coloured plates of the drum—those representing the normal condition are distinctly poor. The book ends with a chapter on deaf mutes and their education, a subject in which the author has had a large amount of experience, and which he deals with freely and well with a number of illustrative cases.

The Diagnosis and Treatment of some of the Common Diseases of the Rectum and Anus. By CECIL H. LEAF, M.A., M.B. Pp. viii., 118. London: E. H. Blakeley. 1905. **Surgical Case Book Charts for Rectal Diseases.** By CECIL H. LEAF, M.A., M.B. London: Archibald Constable & Co. Ltd.

This treatise on diseases of the rectum and anus is a useful and practical elementary manual from which many helpful facts may be gleaned. It deals with surgical anatomy and the more common diseases and their treatment. We note that the author prefers to examine the patient in the semi-prone position on the *right* side, and that in the treatment of fissure of the anus he does not divide the base of the ulcer but the sphincter laterally,

and gives reasons for avoiding section in the middle line anteriorly or posteriorly. With regard to the treatment of cancer of the rectum by colostomy, the author thinks that the operation should always be performed when the passage of fæces causes distress and before signs of obstruction become manifest. In excision of the rectum for cancer, he holds that colostomy should always be performed, and that the artificial anus thus made should be a permanent one. We warmly recommend the perusal of this book. The charts designed for rectal diseases may be of service to those who are not draughtsmen.

Report on the Origin and Spread of Typhoid Fever in U.S. Military Camps during the Spanish War of 1898. 2 volumes. Washington: Government Printing Office. 1904.

This monumental work has been prepared in accordance with Act of Congress, and is largely due to the interest and appreciation of the late Honourable Secretary of War, Mr. Root. Professor Victor C. Vaughan, Major and Division Surgeon, U.S. Volunteers, has laboured unceasingly to put the full report in such shape as to make it a classic not only for the study of the epidemiologist, but also for the use of the entire medical profession. An abstract of the report was published in 1900. The original board consisted of three medical officers, two of whom have since died—Major Walter Reed, U.S. Army, and Major Edward O. Shakespeare, U.S. Volunteers, whose work receives the highest recognition from the surviving author of these volumes. It was Shakespeare's great work to demonstrate by a detailed study, believed to be without a parallel in the annals of epidemiology, that typhoid fever is a contagious as well as an infectious disease, and that isolation and disinfection are essential procedures in abating certain epidemics of this disease in armies.

Exercises in Practical Physiology. By AUGUSTUS D. WALLER, M.D., F.R.S. Part II.—*Exercises and Demonstrations in Chemical and Physical Physiology*, by Augustus D. Waller and W. Legge Symes. Pp. iv., 79. London: Longmans, Green & Co. 1905.—This little book seems to us an exceedingly good one on that branch of practical physiology of which it treats, and admirably adapted to the purpose for which it is intended. Although not lengthy, it contains all the matter which it is important for a medical student to know; and one who has carefully worked through this course under his teacher's supervision, and remembers the facts he has here learnt by practical experience, will have a knowledge of this important part of physiology which will always be useful to him. The composition and arrangement of the book show that its authors have had a large experience of teaching, and are thoroughly conversant with the needs of the student. We can cordially recommend it.

The Medical Annual for 1905. Pp. lxxxiv., 704. Illustrated. Bristol: John Wright & Co.—This volume commences a new series, in that the page has been increased in length to correspond with the increasing thickness of the annual issues. The editor in his preface says, "We have tried to do our work so that no page of the *Annual* shall be without interest and information to the practitioner," and we can state, as one of the readers, that the editor has always succeeded admirably in this respect. Though the use of cross references has rendered it unnecessary, we should have been glad to see the new series grouping the various diseases more completely under the larger headings of diseases of the lungs, nose, skin, &c., respectively, or, if the alphabetical arrangement of diseases as headings is to be retained, that a scheme of the various pulmonary, nose, skin, &c., complaints should be given somewhere, so that anyone wishing to see at a glance the advances reported under these several headings could do so without wading through the whole work or index. This, however, is a suggestion, not a complaint, for it is difficult to criticise when the whole is so excellent.

We note, however, that an article on the Nordrach treatment of consumption, written by Dr. Penn-Milton, is attributed to Dr. Walther, an inaccuracy which should have been avoided.

We must especially congratulate the editor and the publishers on the series of stereograms, showing that the difficulties in the printing of these plates have been overcome in a most creditable manner; we have never seen finer examples of the printer's art in any text-book, while the stereoscope supplied by the publishers, an improved modification of Watson Williams's stereoscope, is the best hitherto produced for stereograms in a book.

Serums, Vaccines and Toxines. By Wm. Cecil Bosanquet, M.A., M.D. Pp. viii., 344. London: Cassell & Co. Limited. 1904.—This, a small and concise work on a very difficult subject, is a book which was very much wanted by the medical profession. The theories are put as shortly and clearly as possible, and their practical aspect explained. There is just sufficient history to add an interest to the subject. The chapters on Diphtheria and Typhoid are particularly good. The treatment of rabies by Pasteur is explained and approved, and the few statistical tables on this subject are carefully chosen and present a most convincing statement. Hæmolysis and cytolysis, subjects not easy to understand in most descriptions, can be understood without difficulty. The same may be said for precipitins and agglutinins. The book does not lay any claim to originality, but great credit must be given to the author for sifting the tangled maze of terms which have been introduced into this subject and presenting them in a clear, readable form, in a small compass, and in a way that the busy practioner can follow without the use of a dictionary.

Medical Electricity. By H. Lewis Jones, M.A., M.D. Fourth Edition. Pp. xvi., 536. London: H. K. Lewis. 1904. —This edition of Lewis Jones's valuable text-book on things electrical in medical practice contains additional chapters on the following subjects: The Utilisation of Currents from the Mains for Medical and Surgical Purposes, High Frequency Electricity, and also an introduction to the work with X-ray machines. The subject of the use of electricity in practical medicine has made and is making such rapid progress that it is difficult for writers to keep their text-books up to date. This work is of necessity incomplete, but it is a book ready of reference, well arranged, and unbiased in opinion on controversial topics. If it is difficult to keep text-books up to date, how much harder is it for the practitioner to keep pace with the development of this side of practical physics unless, indeed, he make this branch a special study! A volume such as this is serves to show how important the knowledge of physics may prove in the education for the profession. There is, indeed, it appears, no subject of which a medical man may feel that the knowledge is of no importance. The treatment of disease by physical methods other than electricity has also a wide scope, and the future student will be required to show a grasp of these things before he can be said to be equipped with modern weapons.

Walsham's Handbook of Surgical Pathology. Third Edition. Revised by Herbert J. Paterson, M.A., M.B. Pp. xxii., 529. London: Baillière, Tindall & Cox. 1904.—When the first edition of this work came out in 1878 it was quite a new idea in this country. Its great use was at once felt by the students of St. Bartholomew's Hospital: it couples up their works on Surgery and Pathology with the actual specimens in the museum. The subject is described in the text, and then certain typical specimens are referred to and explained. The present edition has been much enlarged, and cases in the College of Surgeons are also used for reference. The whole work is excellently got up, well printed, and is very pleasant reading. Even apart from reading in the museums, to which it specially refers, the book gives an excellent survey of surgical pathology.

The Principles and Practice of Asepsis. By Arthur Styles Vallack, M.B., Ch.M. Pp. x., 95. London: Baillière, Tindall and Cox. 1905.—This little book is a reliable and succinct account of the lines on which the surgical or obstetric operator should work in attempting to secure asepsis. He gives in detail the precautions which must be taken in order to prevent infection of wounds. Many of these are common knowledge at the present time, but the valuable feature of this book is that it provides in a small space a combination of all the information on the subject, rendering reference to many isolated papers by different authors unnecessary to those in search of information on various points of detail. He shows that infection from air-

borne germs is not of the frequency or importance once attributed to it, while infection from the skin of the patient or operator is both common and virulent. Following Kocher and Leedham-Green, he shows the great difficulty of rendering the skin of the hands aseptic, and is a strong advocate for the wearing of gloves by the surgeon and the isolation of the area of operation by the use of sterilised sheets stitched to the edges of the wound. We notice that he does not allude to the infection of wounds by the saliva or breath of the operator, and also an obvious misprint on page 74, the sentence, "If septic, shut up; if aseptic, keep open," obviously should be, "If *aseptic*, shut up; if *septic*, leave open."

A Handbook of Intestinal Surgery. By LEONARD A. BIDWELL. Pp. xi., 167. London: Baillière, Tindall, and Cox. 1905.—This little book is mainly intended for the help of those performing operations on the dead subject, and contains a full description of the work done in intestinal surgery in the class at the West London Post-graduate College. From this point of view it is a useful handbook, as the various procedures are lucidly explained and the text is fully illustrated with figures which are largely semi-diagrammatic. The methods are, however, such as are common knowledge to the operating surgeon, and can be found in the larger manuals dealing with gastro-intestinal operations.

Recurrent Effusion in the Knee-joint. By Sir WILLIAM BENNETT, K.C.V.O., F.R.C.S. Pp. 29. London: Longmans, Green, & Co. 1905.—This Lecture, reprinted from the *Lancet*, is based upon a collection of 750 cases of recurrent effusion in the knee-joint. The term recurrent effusion is held to mean an effusion which had recurred after an interval or intervals during which the joint, so far as could be seen, had resumed its normal condition. The cause of the first or original effusion in each case was an injury. Thus first effusions and effusions from tubercular disease are excluded from consideration. More than half the cases—428 to be precise—are classified as examples of the so-called "internal derangement" of the knee-joint with obvious signs. The diagnosis in this group of cases was verified by operation 80 times, but in the remaining 348 cases it was based upon the obvious signs alluded to above. Seven types of internal derangement were found in the 80 cases operated upon, and drawings illustrating these are appended. In another group of 56 cases, without signs of any kind excepting recurrent effusion, 12 were submitted to operation. In 7 of these the semilunar cartilages were found to be displaced, but in the remaining 5 nothing was found to account for the effusion. The technique of the operation for internal derangement of the knee-joint is described. In 241 other cases of recurrent effusion certain constitutional causes were influential, including malaria and some unknown cause which leads to passive or quiet effusion in certain young people, as well as the

more ordinary conditions such as gout, rheumatism, and osteo-arthritis. The lecture is of considerable interest, and a recollection of the main points brought to notice cannot fail to be helpful to practitioners confronted with cases of recurring effusion in the knee-joint.

The Ocular Circulation. By J. HERBERT PARSONS, B.S., B.Sc., F.R.C.S. Pp. 76. London: John Bale, Sons and Danielsson, Ltd. 1903.—The author first points out the difference between the ocular blood supply in man and in the higher vertebrates, the latter having in most cases branches from the external carotid supplying the eyeball. In the lower vertebrates, and even in most of the lower mammals, the retina is entirely devoid of vessels, whilst in the elephant, horse, rodents, &c., the retinal vessels are extremely inconspicuous. Details of various experiments on the intra-ocular blood-supply and tension in animals are related, and manometer tracings are given which show that the eyeball, whilst having the highest capillary and venous pressure of any organ in the body, depends for its tension much more upon the general blood pressure than on vaso-dilator or vaso-constrictor influences of the trigeminal or sympathetic. There is partial analogy between intra-cranial and intra-ocular circulation, and increased intra-cranial pressure causes a rise in the tension of the eyeball. He suggests a new, and we think most probable, theory to account for optic neuritis. He compares it to the well-known œdema which surrounds a cerebral tumour, the œdema being in both instances due to increased pressure and consequent malnutrition. "A very slight œdema of the nerve at the lamina cribrosa will compress the capillaries, lead to greater anæmia and greater œdema, until finally the larger vessels are also compressed." In the last chapter some pathological anomalies of the ocular circulation are considered, the conditions existing in glaucoma, embolism of the central artery, and toxic amblyopias. Tobacco amblyopia, he finds, is due to a toxic effect upon the retinal elements, whilst quinine amblyopia is due to extreme constriction of the retinal arteries.

A Manual of Ophthalmic Practice. By CHARLES HIGGENS. Second Edition. Revised by ARTHUR W. ORMOND. Pp. viii., 375. London: H. K. Lewis. 1903.—The author says that he does not pretend to go deeply into the subject, and we quite agree with him. As far as the descriptions go there is nothing to complain of, but the whole is too superficial for the practitioner. It might do as a cram for students going up for a surgical examination, but it would not be of much use to anyone consulting it with a view to the treatment of obscure and difficult cases. The treatment of ophthalmia is fairly good, but no mention is made of the difficulty of cleansing a baby's eyes. Under episcleritis there is no mention of salicylate of sodium. The second half of the book deals with operations,

and is more satisfactory. It is evidently written as the result of wide personal experience. We can recommend the book to anyone wishing a good general idea of the subject; it is up to date and accurate, and the treatment when sufficiently detailed is on modern lines and thoroughly reliable.

Errors of Refraction and their Correction. By HAROLD B. GRIMSDALE, M.B., B.C. Pp. iv., 87. London: The Medical Times Limited. 1904.—Another book on *Errors of Refraction and their Correction* is born to the world: this time Mr. Harold Grimsdale is the father. The book is carefully compiled and covers the whole subject. The subject, however, is limited, has been covered many times before, and by very capable hands. It seems almost unnecessary to do it again; still, this book goes into the matter in such a practical manner, that its study will doubtless be found a useful one.

Guide to the Examination of the Throat, Nose and Ear, for Senior Students and Junior Practitioners. By WILLIAM LAMB, M.D., C.M. Edin. Pp. xi., 152. London: Baillière, Tindall & Cox. 1904.—To the class of readers mentioned in the title this little book may be cordially recommended. The best section of it, in our view, is that devoted to the description of the nasal cavities, and the value of this section is much enhanced by the excellent anatomical illustrations it contains. But good as this portion of the book is, it might well have been extended to include a more detailed account of how attempts should be made to discover the source of nasal suppuration originating in the accessory nasal sinuses. The portions of the book dealing with the examination of the larynx and ear are good, and also the concluding section, in which the elementary principles of local treatment are discussed. The initial difficulties of students in the examination of the throat, nose and ear often lead to discouragement, and secondarily to neglect. The numerous opportunities afforded in hospital practice of making these examinations are allowed to slip by unheeded, and in most cases they can never again be obtained. We think that the perusal by students in their earlier period of study in hospitals of some such manual as the one before us, which is short and written interestingly and lucidly, would help to diminish the discouragements to which we have alluded and to smooth the way for the acquirement of the skill necessary for the useful examination of the organs under consideration.

An Introduction to Dermatology. By NORMAN WALKER, M.D. Third Edition. Pp. xvi., 284. Bristol: John Wright & Co. 1904. That a third edition of this work should be called for in so short a time is a sure sign that it is appreciated by the medical profession. A good deal of argumentative matter has been omitted in this edition, thus enabling the author to introduce some new matter without increasing the size of the book. A large part of this extra space is taken up with an

account of the rôle that electro-therapy plays in dermatology. The author speaks very highly of the use of X-rays in certain skin complaints. Thus in speaking of the treatment of sycosis, he says: "The X-rays are probably more useful than any other treatment in obstinate cases." Again, speaking of the use of the rays in the treatment of favus, he says: "Their introduction has entirely altered the formerly gloomy prognosis of this disease." This hand-book of dermatology is to be thoroughly recommended both to the student and to all those who are interested in the subject.

Practical Manual of Diseases of Women and Uterine Therapeutics. By H. MACNAUGHTON-JONES, M.D., M.Ch. Ninth Edition. Pp. xxxviii., 1044. London: Baillière, Tindall & Cox. 1904.—It is now twenty years since the first edition of this work appeared. It has now assumed a very large size. It is too big for students, but for those engaged especially in the study of gynæcology it will be found very useful. One often wishes an author would give the methods he himself prefers, and not merely tabulate a number from other works. In this book not only does the author give his own ideas, but also those of others, not merely from reading or hearsay, but by having actually visited and seen their work in their respective clinics. In this way the book may be regarded as one of the best, in giving a broad, unbiased view of the whole subject, many descriptions and plates appearing in it for the first time in any book in this country. It is impossible to review the whole in detail. Perhaps the most prominent feature is the care with which the steps of all the operations are described and illustrated. Some of the smaller subjects—for instance, vascular caruncle—are not so well dealt with. In this edition the whole book has been profoundly altered and very much improved.

Burdett's Hospitals and Charities, 1905. By Sir HENRY BURDETT, K.C.B. London: The Scientific Press, Limited.—This year-book of philanthropy and the hospital annual is for the first time able to give complete figures for ten consecutive years during which the use of the uniform system of registration has been enforced throughout the hospitals of the metropolis. Fourteen preliminary chapters give the newest information and an exhaustive review of the more important questions in hospital administration which are engaging the attention of those interested in this important subject. Everything can here be found, from the duties of the chairman and medical superintendent to the most minute detail of income and expenditure. It will be a most fascinating book to those who revel in figures and in dictionaries. Its compilation has entailed vast labour, but great care has been exercised, and it is quite up to date. The name of its editor is a sufficient guarantee that no pains have been spared to make it as useful as is possible.

Editorial Notes.

The British Medical Association, Leicester, 1905.[1]

This Association has now recorded the seventy-third of its annual meetings, but it is the first visit it has paid to the historic and rapidly-growing town on the banks of the Soar, formerly known by the Britons as Caer Leir—the city by the Leir. It is by no means an unimportant part of the functions of this great Association that it gives its members annually an opportunity of learning something of the ancient and modern history and development of the principal cities of the empire. Leicester is now one of the most busy and thriving towns of the kingdom, with a population of nearly a quarter of a million, a commercial centre built up by many industries in addition to the well-known ones—boots and shoes, hosiery, and elastic webbing. The administration of the town by the Mayor and Corporation is one of the best illustrations of social co-operation, inasmuch as the gas, electric and water supplies, the arrangements for disposal of sewage, the isolation hospitals, the new cemetery with its crematorium, the numerous open-air spaces, including four large parks, four sets of public swimming baths, the municipal libraries, and the unsurpassed system of electric tramways, are all the work of this far-seeing and energetic body of civic rulers. Those members of the Association who were not engaged in the onerous duties of representatives had ample time, in addition to that spent at the sections, to see some of the many still existing evidences of the history of ancient times. Few places have a better record of the work of the Romans, for it is known that the Roman general, Ostorius Scapula, about fifty years after Christ, first established an encampment large enough for some 15,000 men on the rising ground above the river. This he named Ratæ Ceritanorum, the camp of the Ceritani, and the position

[1] For many of these details we have to acknowledge the assistance of Nuttall's *Guide*.

of the old Roman walls, afterwards existing for many centuries, is well known, although little trace of them now remains. In the year 120 the Emperor Hadrian is known to have passed through Leicester, a record of his tour having been found in the shape of a milestone with a laudatory inscription to this emperor upon it and the information "from Ratæ, two miles." After the Roman protection was withdrawn from Britain the Roman name Ratæ disappears, the primitive idea of a camp by the Leir was reinstated, and the chief city of the kingdom of Mercia then became known as Legro-ceaster, or Leicester, the camp on the Legre, or Leire. By this time the Angles had become Christianised, Mercia became a diocese, and the first bishop of Leicester was Cuthwin, who lived in 679, and whose church occupied the position of the present St. Margaret's. Doomsday Book gives a good account of what Leicester was at the time of the Norman invasion, and it was then that Leicester Castle was built by the governor of the town appointed by William the Conqueror. It was destroyed later and rebuilt by Robert de Beaumont, Earl of Leicester, in the time of Henry II., when the church of St. Mary de Castro and the Castle Hall, a great hall which still serves as the assize court of to-day, was first built. In the thirteenth century Sir Simon de Montfort, Earl of Leicester and Lord High Steward of England, who headed the barons in their struggle for freedom against the autocracy of the king, established the first Parliament of England in 1265. The great earl was killed at the battle of Evesham, but the Victoria Park of the present day remains as his gift. Not long after we find the title of Earl of Leicester passing to the younger son of King Edward III., John of Gaunt, who spent much of his time in Leicester Castle in the state befitting a prince of the blood-royal; for as the patron of literature and music and the friend of religious reform the Earldom of Leicester reached its zenith in one who was a son and a father of kings, a gallant soldier, a clever man, the friend of Chaucer and of Wycliffe. "At his death there were no more Earls of Leicester, for the earldom ceased . . . . because the glory of the earldom was merged in the glory of the throne."

The walks round ancient Leicester were conducted by Mr. S. Perkins Pick, F.R.I.B.A., who as an enthusiastic antiquary and a modern architectural authority was able to give the fullest information on both the old and the new. After taking the party through some of the modern buildings, he led them to St. Martin's Church, on the site of which once stood a temple dedicated to Diana, a Saxon church followed at the time of the Conquest, and the present church is Early English. The gravestones in the churchyard presented many interesting features in the evolution and decline of scroll engraving in the art of slate cutting and decoration.

The old town hall was pointed out to us as one of the most historic buildings of the town. It was originally the hall of the Corpus Christi Guild. At the west end of the hall is the mayor's seat, with the date 1586 and the initials of Queen Elizabeth, and in the mayor's parlour is the chair in which Prince Rupert sat when he had taken the town. All Saints' Church and St. Nicholas Church—Leicester's oldest building—standing on the site of a Roman temple dedicated to Janus, presented many points of interest. The stone pillars standing in the churchyard, unearthed during excavations in Holy Bones Street (a suggestive name), are clearly of Roman origin. Close by stands the well-known Jewry wall, probably part of the old temple of Janus, and two specimens of Roman pavement, both in their original positions and well preserved, are well worthy of a visit. These relics of the Roman occupation of the town are beautiful mosaic work of the simplest materials, one of them is said to be a floor in the residence of the Roman prefect, and about 1,800 years old.

A visit to St. Mary's Church followed. Here was formerly a Saxon church, built by Ethelflœda, daughter of Alfred the Great. This was destroyed by William the Conqueror in 1068, but was soon replaced by St. Mary de Castro, with which John of Gaunt was largely associated. The various styles of architecture at different periods are well seen—the original Norman added to by later Norman work, and then modified by the insertion of Early English arches. Leicester Castle of the present day shows little of its brilliant history in olden

times, for here it was that the first meeting of King John's discontented barons was held in 1201, and from it the first Parliament of England was summoned by its earl, the great Simon de Montfort.

Any members passing De Montfort Square would have noticed the colossal marble statue of the late Rev. Robert Hall, M.A. (the work of John Birnie Philip in 1871), who removed from Leicester to Bristol in 1825 and died in 1831. The history of this distinguished orator—one of the greatest of his time—is of especial interest to medical visitors from Bristol. His grandson is with us as Chairman of the Committee of the Bristol Royal Infirmary, Mr. Robert Hall Warren.

Leaving the castle-yard by a picturesque turret gateway, we find ourselves in the district called "The Newarke," or "New Worke" of Henry, Earl of Lancaster, who built here his "New" or Trinity Hospital and his famous collegiate church. More modern skill has here constructed one of Leicester's most modern developments, the Technical and Art Schools, which rank among the first of the kingdom, and where all the sectional work of the meeting demands our attention.

As regards the meeting itself, the weekly journals have given full reports, and there is little need for comment. The presidential address of Mr. G. Cooper Franklin, F.R.C.S. Eng., endeavoured to improve the status of the profession by improving the details of medical education, a subject of perennial interest, often discussed, but mostly to little purpose. We trust that the excellent suggestions of the President may receive thoughtful consideration, and may be of benefit to future students of medicine.

The address given by Dr. Henry Maudsley, entitled "Medicine, Present and Prospective," affords material for much philosophic thought, for he foresees that medical science will play a large part in the future improvement of the race, and that the laws of mental breeding will do much towards that improvement.

The interesting and original address in surgery, given by Charles John Bond, F.R.C.S. Eng., was entitled "Ascending Currents in Mucous Canals and Gland Ducts, and their

Influence in Infection: a Study in Surgical Pathology." Mr. Bond's experiments were made on the large intestine, the female generative tract, the upper intestinal, the urinary, the respiratory tracts, and the ducts of glands. Many specimens in the museum gave the results on which his remarks were founded. It was an excellent piece of work well worthy of the occasion; its originality and importance cannot well be over-estimated, and the address is one of the things which will be remembered for years to come as emanating from the meeting at Leicester. The Pathological Museum gave much of Mr. Bond's careful work, for he, as chairman of the committee, had arranged that the museum should as far as possible illustrate the subjects under discussion in the various sections. His own contributions were very varied in character, illustrating not only his address, but extending over the whole realm of surgery. At the Oxford meeting it was thought and freely stated that such a standard of excellence in the Pathological Museum could not well be continued elsewhere, but Leicester has succeeded in maintaining a very high standard.

The sections, twelve in number, were the scenes of discussions and papers of the usual type. We propose to refer to only two of these—that of State Medicine and Laryngology. In the former of these Dr. Lionel Weatherly opened a discussion on the provision of sanatoria for poorer consumptives. He submitted that three classes of sanatoria were necessary, viz. institutions started and controlled by Boards of Guardians (only 18 per cent. of which were at present doing any substantial work in this direction), institutions for persons just above the pauper class, and, thirdly, for consumptives able to pay 25 to 40 shillings per week. In the discussion which followed, Dr. Shingleton Smith remarked that the public and the profession expected too much from sanatorium treatment, and that unless a careful selection of suitable cases could be made the method would soon fall into undeserved disrepute. Only pathologists could realise the hopelessness of expecting all cases of phthisis to be cured or even much improved by any kind of treatment.

In the laryngological section discussion on the treatment of

laryngeal tuberculosis, introduced by Drs. Habershon, Jobson Horne and Barwell, the chief point of interest was the consideration of the earliest indications of the disease, hitherto regarded as predisposing causes, and the desirability of restricting operative treatment to a small and specially favourable class of cases, and of relying mainly on less radical measures. St. Clair Thomson and Watson Williams emphasised the importance and good results obtainable from sanatorium methods combined with absolute silence for a prolonged period.

The sections of Laryngology and State Medicine were associated in a discussion on diphtheria, with special reference to the infectivity and notification of the latent forms. Watson Williams drew attention to the relative frequency of very mild diphtheritic infection which, owing to the very slight symptoms, were prone to be overlooked unless special precautions were taken, these latent forms being nevertheless a frequent source of infection amongst contacts. He pointed out that the diphtheria bacillus is not only exceedingly polymorphic but variable in virulence, and that owing to the uncertainty as to the limits of normal variation of the diphtherial organism, it is difficult to define what must be regarded as infectious diphtheria. He rejected the view that the Hoffmann bacillus was an attenuated diphtheria bacillus. Special stress was laid on the frequency with which the nasal passages contained diphtheria-like bacilli, and in many cases this was not to be regarded as a source of danger; the importance of clinical manifestations as compared with bacteriological cultures could not be overlooked. Dr. Davies related the methods adopted at Bristol in determining infectivity, and considered that the presence of Hoffmann's bacillus in recent contacts necessitated special precautions and segregation.

The annual exhibition was held close by the sectional meetings in "The Newarke." It appeared to us to have fewer novelties than on previous occasions; surgical appliances appeared to predominate, and it was difficult to find amongst the drug and food exhibits anything which one had not seen before. The display of aseptic furniture, electrical apparatus, and motor-cars rather of the family coach type than for the

country doctor on his rounds, occupied a great deal of the available space. It is satisfactory to find that the supply of special proprietary exhibits appears to be declining; it is impossible to use more than a small fraction of those on the market, and many of them are no better than the simpler preparations of the pharmacopeia. Regardless of the principles of scientific drugging, the prescriber appears to have drifted into the hands of the semi-scientific pharmacist in search of some proprietary compound to which a short but meaningless name may be attached, and it is too often the case that an elaborate but unscientific compound is selected by the prescriber instead of a more simple preparation of the drug he requires. The art of prescribing appears to be fast dying out; even physicians are adopting the ways of the surgeons by prescribing some well-known elaborate compound, the name of which is short and takes little time to write. The pharmacist makes his compounds elaborate in order that they may be the less easily imitated, but who can say what will be the combined effect of some twenty drugs in combination, even if the individual effect of each one may be foretold. Doubtless many of these combinations have proved themselves to be useful and have come into general use deservedly, but on the other hand there are many others whose only virtue depends upon an incessant and barefaced laudatory advertisement.

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Infant Life.

In the seventy-five largest provincial towns of England the infant mortality rate during 1904 was 166; in Bristol it was 134. This means that out of upwards of 37,000 infants dying under the age of one year, Bristol contributed something over 1,200. The Infants' Health Society, in an interesting pamphlet on the "Present Conditions of Infant Life," points out the immense financial loss involved, not only in the high death rate, but in the physical and moral damage which present conditions inflict on the survivors, filling infirmaries, asylums, and prisons with maimed specimens of humanity, who have to be maintained at the public expense. This Society has established an Infants' Hospital in London, the first annual report

of which has been published. From Dr. Vincent's medical report we gather that out of 183 cases treated 94 cases were discharged as having made good recoveries, or nearly 52 per cent. Seeing that the general condition of the 94 infants was but little better on an average than that of the remainder, this result seems very satisfactory. Dr. Vincent is a strong advocate of accurate percentage feeding, and his cases certainly give considerable support to the views he expresses. It is obvious, however, that hospitals cannot alone meet the needs of the situation, and the Infants' Health Society advocates various other measures, especially the establishment of milk depôts and dispensaries and the house-to-house visitation, which is generally associated with these institutions. In the pamphlet above mentioned the encouragement of breast feeding is very rightly put first as the most important of all measures for the protection of infant life, but it is recognised that under present conditions an enormous percentage of working-class mothers cannot feed their children naturally. To provide a suitable substitute for breast milk is, it is urged, financially impossible for many of these mothers, and hence the duty of providing such a substitute rests on the State, which is financially interested in the physical development of its infants collectively just as it is subsequently interested in their intellectual and moral education. In the last number of the *Journal* (vol. xxiii., p. 132) we printed an article dealing with milk depôts, in which the main outlines of a scheme were sketched whereby the value of these institutions might be more or less accurately gauged. The difficulty hitherto has been that no standard of comparison exists, and that the number of infants fed at even the largest depôts is too small to have any effect which can be statistically expressed on the infant mortality rate. It seems quite certain that the question of the infant death rate is becoming yearly of greater importance to us as a nation, and we commend a perusal of the publications of the Infants' Health Society to all who realise this fact and desire to assist in proper education of the public mind as to the best methods of dealing with the present calamitous state of affairs.

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Bristol Royal Infirmary.

THE one hundred and sixty-ninth annual report, being for the year 1904, is much larger than on previous occasions, and is illustrated by many interesting photographs. It contains a pressing appeal from the President and Treasurer for additional annual subscriptions, and points out the stern necessity for raising a fund of £50,000 for renovations and improvements. The recent carnival, carried out with so much energy and skill by the President and his committee, has given an excellent start by clearing off the accumulated debt of twenty and more years. We trust that the appeal which Sir George White is about to make will meet with that response which his own enthusiasm and example deserve. He has already done much good work for this institution, and has shown that as President he intends to carry on that work with all the ability and zeal at his command.

Notes on Preparations for the Sick.

The Pasteur Filter (Chamberland).—J. DEFRIES & SONS LTD., 146 Houndsditch, London, E.C.—One of the most serious problems that medical experts have been called upon to solve is the production of a filter for drinking-water capable of removing not only suspended inorganic matter, but also pathogenic organisms. Needless to say, many filters, though fulfilling the first requirement, are totally inadequate in the more important detail. The filter-tubes of the Pasteur-Chamberland type are composed of specially-prepared porcelain, through which it is claimed that bacteria cannot pass. Experiments have been made by numerous experts, and their results are highly satisfactory.

We believe that these filters are quite reliable, and that they do what is claimed for them. They should therefore be a true safeguard against waterborne disease.

Mellin's Feeding Bottle.—MELLIN'S FOOD LTD., Peckham, London.—The simplicity and efficiency of this arrangement of teat, patent valve, and bottle are too well known to need full description. It should be doing a great deal towards the

reduction of infant mortality. The facility with which it can be cleansed, and the regulation of the dose for each meal at various ages, must greatly facilitate artificial feeding. We notice that the glass is of very indifferent quality, and that the bottles are made in France.

Mist. Senecio Co.; Hewlett's Antiseptic Cream; Creosalgen Jelly; Laxans, compressed tablets.—C. J. HEWLETT & SON, Charlotte Street, London, E.C.—The makers send us these special preparations, which all appear to be good and to serve the purposes intended.

The Senecio Compound is another of the numerous uterine tonics which are said to be useful in all varieties of uterine disorders.

The Antiseptic Cream is a compound of zinc oleate with boric acid, lanoline, &c., which should serve many useful purposes.

The Creosalgen Jelly is prepared with lanoline and 1 per cent. of surgical creosalgen. It is an ideal lubricant for use in midwifery practice, as it is a reliable antiseptic more powerful than carbolic acid, is devoid of caustic properties, and does not stain surgical apparatus.

The Laxans Tablets contain gr. iss. of phenolphthalein. They are a laxative of non-irritating character and medium strength.

Hemaboloids; Formolyptol.—THE PALISADE MANUFACTURING CO., New York. London: ANDRUS & ANDRUS, 46 Holborn Viaduct.—Hemaboloids are stated to contain nucleo-peptones, and to possess hematinic, lecithinic, and nucleogenic properties. Chemical analysis reveals the presence of organic iron, and also of non-coagulable proteid. The ash contains phosphoric acid, which is derived from organic phosphorus existing in the preparation. The flavouring is very pleasant, and is partly due to the presence of a little alcohol. The therapeutic agents present should be readily assimilable, and the iron should have no undesirable action. Hemaboloids are also prepared with the addition of arsenic and strychnine.

The Formolyptol is an antiseptic and germicidal fluid containing aceto-boro-glyceride (5 per cent.) with formaldehyde (0.2 per cent.) in combination with pinus pumilio, eucalyptus, myrrh, storax, and benzoin. It forms a slightly opalescent fluid, useful for throat spray, nasal douche, gargle, douches, and dressings of all kinds.

Renine (Eau nitrée d'Alsace.—Source César).—RENINE LTD., 254A High Holborn, London, W.C.—At the present time there

are so many medicinal waters on the market, that it is somewhat difficult to advocate the claims of any special one without a prolonged trial. As far as chemical analysis can decide the value of a water, Renine should prove a desirable addition to already existing types. It is obtained from a spring probably used by the Romans, and contains moderate amounts of various mineral salts, including compounds of iron, calcium, magnesium, potassium, sodium, in combination with sulphuric, hydrochloric, and carbonic acids. The principal saline ingredient is nitrate of potassium, amounting to one-half of the total mineral matters. To this is probably due the fact that the water possesses well-marked diuretic properties.

Chloroform.—BURROUGHS, WELLCOME & Co., London.—It has recently been demonstrated that a proportion of ethyl chloride, so small as hardly to be capable of detection by chemical means, is often present in chloroform, and has a marked beneficial influence on its action as an anæsthetic. To overcome the difficulty occasioned by its variability, "Wellcome" Brand Chloroform has been introduced. This is particularly characterised by containing a small, but definite, amount of ethyl chloride. In its production the most scrupulous care is taken to ensure the highest attainable degree of purity, and especially freedom from irritating products of decomposition.

Liq. Xenine Co.—OPPENHEIMER, SON & Co., 179 Queen Victoria Street, London, E.C.—This is a new preparation, containing the active principles of rhamnus purshianus and leptandra virginica. It is free from all bitter resinous elements, but contains all the aperient principles of the two drugs; it should therefore stimulate the liver and intestinal tract, producing peristalsis without pain.

Cocoid.

Hyd. c. Creta		gr. $\frac{1}{6}$
Pulv. Rhei. Co.	āā	gr. $\frac{1}{2}$
Sodæ Bicarb.		

This chocolate compound may be chewed without flavour or odour of the drugs becoming apparent. The old Gregory powder should be out of date in the presence of such elegant preparations, which no child or even the most fastidious patient could describe as in the least degree nauseous or unpleasant.

Chologen Tablets.—CHARLES YARROW & Co., Basinghall Street, London, E.C.—The remarkable reception accorded on the Continent to Dr. Robert Glaser's Chologen Tablets in gallstone and liver affections has induced the manufacturers to

endeavour to extend their use in this country. "Chologen is a combination of very small doses of mercury with aromatics derived from the group of purgative and at the same time vegetable agents (podophylline) and carminative and antispasmodic aromatics and oils." The tablets are prepared in three different combinations: "Nos. 1 and 2 are specially laxative, anti-fermentative, anti-putrescent, and restrict inflammation. No. 3 has in addition a stimulating effect, owing to the presence of free camphor."

It is claimed that "with Chologen the need of a dreaded operation is only to be feared under exceptional conditions: thus a great triumph for a modern internal medicine is secured." There is evidence for and against any kind of medicinal treatment of gallstones. No remedy such as this can replace the interference of the surgeon in appropriate cases, although Dr. Glaser claims to have cured 76 per cent. of his cases by this means.

Candol.—THE CANDOL CO., 20 Eastcheap, London, E.C.—Candol is described as a desiccated malt extract possessing marked diastatic power. It is in a convenient form for administration, and it lacks the excessive sweetness of the ordinary extract. In the laboratory it was found to fulfil its requirements, being capable of converting starch into soluble maltose at the body temperature.

The Library of the Bristol Medico-Chirurgical Society.

The following donations have been received since the publication of the List in June:

August 31st, 1905.

J. S. Ashmead (1) ... ... 1 volume.
Medical Officers of Health of Bristol Port Sanitary District (2) ... ... 1 „
Nelson C. Dobson (3) ... ... 26 volumes.
L. M. Griffiths (4) ... ... 4 „
The Editor of *Virginia Medical Semi-Monthly* (5) ... 1 volume.

Unbound periodicals have been received from Dr. R. Shingleton Smith, and unframed portraits from Mr. J. S. Ashmead.

FIFTY-SEVENTH LIST OF BOOKS.

The titles of books mentioned in previous lists are not repeated.

The figures in brackets refer to the figures after the names of the donors, and show by whom the volumes were presented. The books to which no such figures are attached have either been bought from the Library Fund or received through the *Journal*.

Acland, T. D. ... *On the Hours of Sleep at Public Schools* 1905
Bidwell, L. A. ... *A Handbook of Intestinal Surgery* 1905
Braidwood, P. M. *Pyæmia* ... ... (3) 1868
Browne, J. H B. *Medical Jurisprudence of Insanity* ... ... (3) 1871
Chambers, G. F. . *Public Health* ... ... (3) 8th Ed. 1881
Clark, F. Le G. ... *Outlines of Surgery* ... ... (3) 2nd Ed. 1872
,, *Papers on Surgery, Pathology, &c.* ... ... (3) 1889
Clarke, J. M. ... *Hysteria and Neurasthenia* 1905
Cohn, T. ... ... *Methodische Palpation.* Teil I. 1905
Cohnheim, P. ... *Die Krankheiten des Verdauungskanal* 1905
Cripps, W. H. ... *Cancer of the Rectum* ... ... (3) 1880
Curgenven, J. S. . *The Child's Diet* 1905
Duhring, L. A. ... *Atlas of Skin Diseases* ... ... (3) 1876
Fox, T. ... ... *Atlas of Skin Diseases* ... ... (3) 1877
Freeland, E. H. .. *The Radical Cure of Corns and Bunions* ... 2nd Ed. 1905
Gerster, A. G. ... *Aseptic and Antiseptic Surgery* ... ... (3) 1888
Heath, C. ... ... *Course of Operative Surgery* ... ... (3) 1877
Herschell, G. ... *Electrical Methods in Affections of the Stomach* 1905
Humphry, G. M. . *Old Age* ... ... (3) 1889
Huxley, T. H. ... *Anatomy of Invertebrate Animals* ... ... (3) 1877
Ledwich, E. L'E. *Anatomy of the Inguinal and Femoral Regions* ... (3) 1884
Lowe, T. P. ... *Bath Thermal Waters* ... ... (4) 1890
Lowne, B. F. ... *Ophthalmic Surgery* ... ... (3) 1876
Macgregor, Jessie M. *Pathology of the Endometrium* 1905
Moinet, F. W. ... *Medical Examination for Life Assurance* ... ... (3) 1876
Pamphlets ... ... 13 vols. ... ... [V.Y.]
Proctor, G. B. ... *Notes on How to Rear an Infant* ... ... [N.D.]
Radcliffe, C. B. ... *Vital Motion as a Mode of Physical Motion* ... ... (3) 1876
Ranney, A. L. ... *Surgical Diagnosis* ... ... (3) 2nd Ed. 1881
Reed, V. C. Vaughan and E. O. Shakespeare, W. *Report on Typhoid Fever in U.S. Camps in Spanish War of 1898.* 2 vols. . 1904
Sajous, C. E. ... *Diseases of the Nose and Throat* ... ... (3) 1889
Shakespeare, W. Reed, V. C. Vaughan and E. O. *Report on Typhoid Fever in U.S. Camps in Spanish War of 1898.* 2 vols. . 1904
Simpson, Eve B. . *Dogs of Other Days* ... ... (1) 1882
Stein, A. W. ... *Tumors of the Bladder* ... ... (3) 1881
Sutherland, W. G. *Dispensing made Easy* ... ... 2nd Ed. 1905
Symes, A. D. Waller and W. L. *Exercises in Practical Physiology.* Part II. 1905
Tait, L. ... ... *Diseases of Women and Abdominal Surgery.* Vol. I. (3) 1889
Thompson, J. A. . *Free Phosphorus in Medicine* ... ... (3) 1874
Turnbull, L. ... *Diseases of the Ear* ... ... (3) 1872

Vaughan and E. O. Shakespeare, W. Reed, V. C. *Report on Typhoid Fever in U.S. Camps in Spanish War of 1898.* 2 vols. . 1904
Wagstaffe, W. W. *Human Osteology* ... ... (3) 1875
Waller and W. L. Symes, A. D. *Exercises in Practical Physiology.* Part II. 1905
Watson, J. R. ... *Natural Science in Hygiene* 1905
Wells, Sir T. S. ... *Ovarian and Uterine Tumours...* ... ... (3) 1882
White, F. F. ... *The Rational Treatment of Running Ears* 1905
Ziemssen, H. von *Handbook of Skin Diseases* ... ... (3) 1885

TRANSACTIONS, REPORTS, JOURNALS, &c.

American Journal of Ophthalmology, The ... ... Vol. XXI. 1904
American Journal of the Medical Sciences, The Vols. CXXVIII., CXXIX. 1904-05
American Medicine ... ... Vol. IX. 1905
American Pediatric Society, Transactions of the ... ... Vol. XVI. 1904
Archives provinciales de Chirurgie ... ... Tom XIII. 1904
Archivio di Ortopedia 1904
Bristol Medico-Chirurgical Journal, The ... ... Vol. XXII. 1904
Bristol Port Sanitary District, Annual Report for 1904 ... ... (2) 1905
British Gynæcological Journal, The ... ... Vol. XX. 1904-05
British Medical Journal, The ... ... Vol. I. for 1905
Bulletin de l'Académie royale de Medécine de Belgique ... Tom. XVIII. 1904
Cincinnati Lancet-Clinic, The ... ... Vol. LXXXIII. 1905
Clinical Journal, The ... ... Vol. XXV. 1905
Edinburgh Medical Journal, The ... ... N.S., Vol. XVII. 1905
Hospital, The ... ... Vol. XXXVII. 1905
Hospitals—
Westminster Hospital Reports, The ... ... Vol. XIV. 1905
Johns Hopkins Hospital Bulletin, The ... ... Vol. XV. 1904
Journal of Experimental Medicine, The ... ... Vol. VI. 1901-05
Journal of Mental Pathology, The ... ... Vols. V., VI. 1903-04
Journal of Obstetrics and Gynæcology of the British Empire, The Vol. VII. 1905
Journal of Tropical Medicine, The ... ... Vol. VII. 1904
Journal of the American Medical Association, The ... Vol. XLIII. 1904
Journal of the Royal Sanitary Institute ... ... Vol. XXV. 1904
Lancet, The ... ... Vol. I. for 1905
Lister Institute of Preventive Medicine, The. Collected Papers. No. I. 1904
Louisville Monthly Journal of Medicine and Surgery, The Vol. XI. 1904-05
Medical Chronicle, The ... ... 4th Ser., Vol. VIII. 1904-05
Medical News, The ... ... Vols. LXXXV., LXXXVI. 1904-05
Medical Press and Circular, The ... ... [Vol. CXXX.] 1905
Medical Record ... ... Vol. LXVII. 1905
Münchener medizinische Wochenschrift ... ... Bd. I. for 1905
Obstetrical Transactions ... ... Vol. XLVII. 1905
Philadelphia County Medical Society, Proceedings of the Vol. XXV. 1904
Practical Medicine ... ... Vol. II. 1904
Progressive Medicine ... ... Vol. II. for 1905
St. Petersburger medicinische Wochenschrift 1904

South African Medical Record, The ... ... Vol. II. 1904
Treatment ... ... Vol. VIII. 1904-05
University of Pennsylvania Medical Bulletin ... ... Vol. XVII. 1905
Virginia Medical Semi-Monthly ... ... (5) Vol. IX. 1905
West London Medical Journal ... ... Vol. IX. 1904

Obituary Notices.

ARTHUR DAVID GRIFFITHS,
M.D. Brux., Bridgend.

Dr. A. D. GRIFFITHS was educated at Weston-super-Mare and at Wycliffe College, Stonehouse. On matriculating at the London University, he entered University College, Bristol, passing his Preliminary Scientific before entering the Medical Department. At the Bristol General Hospital he obtained the Martyn Memorial and Saunders Scholarships. He then studied for awhile at King's College Hospital, London; and after passing the Conjoint Board in 1894, he assisted Drs. Rose and Carless in getting out their *Manual of Surgery*, many of the illustrations being drawn by his hand.

He then settled in the Forest of Dean, but sold his practice in 1897 to enter on a course of study in Brussels, where he obtained the M.D. of the University. He afterwards practised four years in Ramsgate, but eventually settled at Bridgend, Glamorganshire, where he held a number of important appointments, including that of medical referee to the Coal Owners' Association, and where he was building up a large practice.

The circumstances of his death were peculiarly sad and painful, not only on account of its appalling suddenness from heart failure, but also that it should occur so soon after his success in completely vindicating his character at the Swansea Assizes last December after a foul attempt at blackmail and slander by a patient, when he was awarded £500 damages. The strain and stress of this dreadful time undoubtedly undermined his naturally vigorous health, which was further affected by the rush of work entailed in combating the serious epidemic of typhoid fever which soon afterwards developed in his neighbourhood, and also by his anxiety concerning his wife, who had contracted the disease, their only child being very ill also.

At eleven p.m. on the night of his death (June 15th) he held a long conversation on the telephone with his brother in Bristol, who interrogated him as to his own health. He answered that he felt tired after such heavy days, and that he thought his heart must be a bit weak as he experienced difficulty in walking. He agreed to his brother's suggestion of assistance, and retired to

rest in his usual good spirits. At 4.30 a.m. he went to the door of his wife's room and called the nurse, complaining of agonising pain and putting his hand to his heart. She gave a stimulant, and telephoned at once to his friend, Dr. Thomas, who, though arriving with all speed, pronounced life to be extinct.

Dr. Griffiths was a skilful diagnostician and an expert in electrotherapy; he brought to bear on his work, in which he always rejoiced, a mind of considerable originality. Very popular among his fellow-students, he was still more so among his brother practitioners and his patients, and by his personal charm and joyous nature won the love and admiration of all his many friends. Upright, courteous and brave, full of promise and hope, his early death, at the age of 34, comes with a very poignant sense of loss to all who knew him, and casts a deep gloom on the neighbourhood in which he lived.

JAMES ST. JOHN GAGE PARSONS, M.D. Chicago, F.R.C.S.,

A RETIRED member of the profession, who qualified in 1843, was not much known to his colleagues of the present day. He did good work in connection with cholera in Bristol in 1849, and was held in high esteem by those who knew him. He died at his residence, Cotham Hill, at the advanced age of 87, having been born in Bristol in 1818. He was connected with the Bristol School of Anatomy and Medicine from 1837 to 1842, and was for a time House-Surgeon to the Bristol General Hospital. He was a cultured man, who took much interest in artistic and many scientific subjects: he was a good botanist and a keen theologian.

Local Medical Notes.

University College, Bristol.—The following successes by Students have recently been recorded:—

UNIVERSITY OF LONDON.—*M.B. Intermediate Examination:* Cecil Clarke, L. J. Short ("Distinguished in Pharmacology," Scholarship in Pharmacology), J. M. Hammond.

CONJOINT BOARD OF ENGLAND. — *Chemistry and Physics:* C. H. Hart, H. R. B. Hull, W. A. Reynolds, T. S. Rippon. *Elementary Biology:* G. H. Griffiths, H. R. B. Hull, J. F. H. Morgan, A. J. O. Wigmore. *Practical Pharmacy:* P. Sinnock. *Medicine:* R. O. Bodman, W. J. H. Pinniger,* J. B. V. Watts, M. R. O. Wilson. *Surgery:* F. G. Bergin, W. J. H. Pinniger,*

Lionel Shingleton Smith,* A. J. M. Wright. *Midwifery:* V. B. Green-Armytage, P. Moxey, G. S. Parkinson, H. K. Salisbury.

L.D.S (ENG.)—*Chemistry and Physics:* I. R. Huddleston. *Mechanical Dentistry:* F. F. Hatton, F. C. Nicholls. *Dental Metallurgy:* C. A. Joll, F. C. Nicholls.

L.S.A.—*Surgery:* A. H. Hughes.*

Bristol Royal Infirmary.—J. J. S. Lucas, M.D. Lond., B.A., has been appointed Honorary Pathologist. Junior House Surgeon, A. L. Sheppard. Casualty Officer, L. Shingleton Smith.

Bristol General Hospital.—H. A. Knight, M.B., B.Ch. Edin., D.P.H., has been appointed Assistant House-Physician.

North Eastern Hospital, London. — Theodore Fisher, M.D. Lond., M.R.C.P., has been appointed Pathologist to this hospital.

Clifton College.—Dr. J. O. Symes has been appointed Physician to the college.

County Hospital, Newport, Mon.—Mr. V. A. Crinks, M.R.C.S., L.R.C.P., has been appointed House-Surgeon.

Winsley Sanatorium.—E. Dunbar Townroe, M.D., has been appointed Resident Medical Officer.

* Completes Examination.

BRISTOL.

Port Sanitary District.—The annual report of the Medical Officer of Health states that 346 ships came from infected ports and they were all examined. No case of plague, cholera, or small-pox was found, but a few of enteric fever were dealt with. A river ambulance service has been established, which is proving useful. About two dozen cases were admitted to the hospital ship *Margarida.*

Royal Infirmary.—A large carnival has recently been held in the Zoological Gardens in aid of the Infirmary. Sir George White, Bart., the President, has been the leading spirit in the inception and execution of this idea for helping the Infirmary, and was supported by a large number of willing helpers. The Duchess of Beaufort became deeply interested in the scheme and induced a large number of ladies to take an active part in carrying it out, and herself declared the carnival open. Bristol thoroughly gave itself over to the spirit of festivity with a laudable object which cleared the Infirmary of the debt of £15,552 18s. 2d., of which sum more than half was contributed by Sir George White, Bart., and the large sum of £4,015 18s. 11d. was contributed by Mr. Samuel White towards the expenses.

BATH.

Winsley Sanatorium.—The Bath and Bristol Branch of the British Medical Association was invited on July 12th to the Winsley Sanatorium, and Dr. Lionel Weatherly gave some interesting details of the institution since its opening last

December. During the period indicated 57 of the 60 beds have been occupied. Altogether 85 patients have been treated and 31 have been discharged. Of the latter number 7 have returned to their ordinary employment and 11 have found lighter work than they had previously been accustomed to. Eight patients were sent home without any signs of improvement, 9 were very much improved, and in 14 instances the arrest of the disease was practically complete. Dr. Weatherly spoke of the difficulty there was in finding suitable work with proper surroundings for those who had been treated in the Sanatorium, and suggested the formation of an after-care association for the purpose of dealing with such cases.

CARDIFF.

Cardiff Infirmary.—The report of this institution for 1904 records an expenditure of £13,131 and an income of £11,477. There was, on an average, 156 patients in hospital daily, and the average cost per occupied bed was £65, or about 8s. less than in the previous year. Among the 2,144 patients admitted during the year 1,164 were treated in the surgical wards, 303 in the medical, 428 in the ophthalmic, and 249 in the gynæcological. With regard to the payment for medicines and dressings by out-patients, the Chairman of the Board of Management is anxious that some charge should be made, and Mr. Lynn Thomas has said that people came in from the outlying districts for 2s. worth of medicine and paid 2s. 9d. in railway fares, while they were quite well able to pay a local practitioner.

The Royal Hamadryad Seamen's Hospital.—This hospital was erected to succeed the old *Hamadryad* ship, which receives the sick and injured sailors who land at Cardiff, to commemorate the Diamond Jubilee of the late Queen Victoria, and the late Marquess of Bute associated himself with the project in the heartiest manner. There are three main wards, each containing 16 beds, and smaller wards, bringing up the total accommodation in the hospital to 60 beds. The foundation-stone was laid in 1902 by the Marquess of Bute, when he came of age, and was formerly opened by him on June 30th last.

GLOUCESTER.

Schools and Infection.—A short circular bearing the signature of Dr. J. Middleton Martin, the Medical Officer to the Gloucester Education Committee, has recently been issued to the school teachers of the county dealing with the question of infection among school children. The teachers are advised, when there is reason to suspect that a child is suffering from an infectious disease, to send him home at once with a written note to the parent requesting that the child should be seen by a medical practitioner and a report of the opinion so obtained sent to the teacher. For this opinion it appears that the Education Committee is prepared to pay a fee of one shilling. In connection

with the school closure, Dr. Martin points out that such a step taken in panic may do more harm than good, because a valuable source of information as to suspected mild unrecognised cases is thus thrown away. Accompanying the circular is a leaflet giving some details with regard to principal symptoms of infectious diseases and of contagious conditions which are liable to affect children. Included in the latter are scabies, ringworm, ophthalmia, impetigo contagiosa, and pediculosis.

Health Report.—In his annual report for 1904, the former Medical Officer of Health of the City of Gloucester (Dr. John Campbell) estimated the population of the city as 50,510, and recorded a death rate of 14.8 per 1,000, and an infantile mortality rate of 134 per 1,000 births. The death rate for pulmonary tuberculosis in 1904 was 0.9 per 1,000. Dr. Campbell advocates the voluntary notification of cases of this disease, and although he suggests the erection of wooden huts on the isolation hospital's estate for the treatment of suitable cases, he expresses the very distinct opinion that the prevention and cure of consumption are to be found in the creation of healthy homes and healthy surroundings for the people.

PENZANCE.

The West Cornwall Infirmary.—This new institution at Penzance is now nearly completed, and it is hoped that it will be ready for the reception of patients in about three months. The cost of the building will be about £8,000. The hospital comprises a central administrative block of two storeys, having a ward on each side. From the south wing of the building the new public dispensary will be built. A well-fitted operating theatre and a laundry, &c., have been added.

SWANSEA.

General Hospital.—In the last annual report of this institution it is stated that the hospital debt has been reduced during the past year from £1,677 to £1,084. The expenditure for the year was £7,134 and the income £7,882. 1471 patients were treated in the wards at an average cost of £4 17s. The convalescent home which was established three years ago in connection with the hospital has taken charge of 130 patients, whose earlier discharge from the hospital enabled a larger number of acute cases to be treated.

TAUNTON.

Water Supply.—A new storage reservoir, capable of holding 120,000,000 gallons, in connection with the Taunton water supply, was formerly opened by the Mayor on June 30th. The reservoir is situated at Laxhay, on the Blackdown Hills, eight miles from Taunton. It will have a water area of 17 acres when filled, with a depth of water of 57 feet. The cost of the undertaking has been about £26,000.